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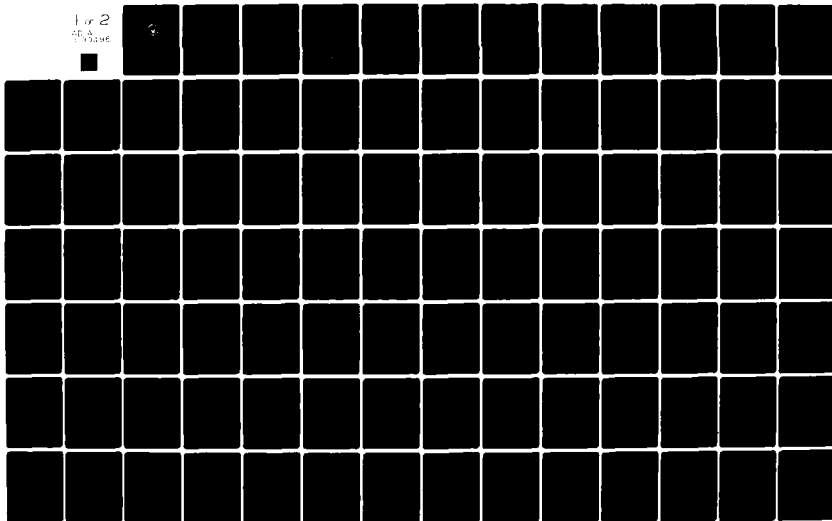   RETENTION INTENTION AMONG U.S. NAVY'S ENLISTED PERSONNEL: AN AN---ETC(U)
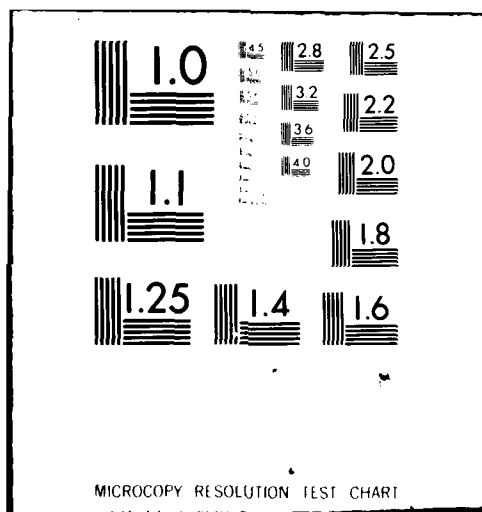   MAR 81 D SIGGERUD

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THESIS

RETENTION INTENTION
AMONG U.S. NAVY'S ENLISTED PERSONNEL:
AN ANALYSIS OF
SOCIAL, ENVIRONMENTAL, AND ECONOMICAL FACTORS

by

Dan-Norman Siggerud

March 1981

Thesis Advisor: J. K. Arima

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This thesis investigates social, environmental, and economical factors that influence the enlistees' decision to reenlist or leave the U.S. Navy. Results are presented both at the aggregate level, and for each of the largest ratings separately.

A model for computation of the U.S. Navy's savings by retaining their personnel, along with a sensitivity analysis of some of the involved variables, are also included.

The main conclusions of the study are:

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a) Retention controlling policies should be decided upon in accord with separate studies of each rating.

b) It is suggested that pay differentiation and different promotion patterns be established for enlistees with different background and different civilian work opportunities, to make the U.S. Navy more competitive (and to reduce rent for some personnel categories).

c) Objective information to the enlistees about civilian earning opportunities may improve retention.

d) It should be considered to eliminate the contract system after the first four years of service.

e) It should be considered to use a higher proportion of older enlistees at sea duty.

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Retention Intention
Among U.S. Navy's Enlisted Personnel:
An Analysis of
Social, Environmental, and Economical Factors

by

Dan-Norman Siggerud
Lieutenant Commander, Royal Norwegian Navy
Graduate from the Royal Norwegian Naval Academy, 1970

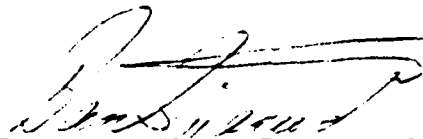Submitted in partial fulfillment of the
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March 1981

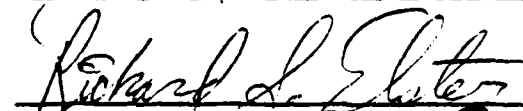Author: _____

Approved by: _____
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Chairman, Department of Administrative Sciences

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Dean of Information and Policy Sciences

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ABSTRACT

This thesis investigates social, environmental, and economical factors that influence the enlistees' decision to reenlist or leave the U.S. Navy. Results are presented both at the aggregate level, and for each of the largest ratings separately.

A model for computation of the U.S. Navy's savings by retaining their personnel, along with a sensitivity analysis of some of the involved variables, are also included.

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I.   INTRODUCTION

A.   THE PROBLEM

The enlisted manpower of the U.S. military forces has been scrutinized throughout the last decade. The research has covered most thinkable aspects, among others:

  a.   the representatives of the All-Volunteer Force

  b.   the impact of women in the military

  c.   factors that have an impact on the recruitment of enlistees

  d.   factors that have an impact on retention

The considerable research has been based on surveys of enlistees who have entered the military with different attitudes and different motivation as follows:

  a.   drafted personnel during the Selective Service System through 1972

  b.   draft-motivated enlistees through 1972

  c.   true volunteers during the draft and later

Contrary to earlier surveys, the 1978 DoD Survey of Officers and Enlisted Personnel, which this research has been based upon, covers to a large extent personnel who necessarily must be classified as "true volunteers", since the seven youngest year groups entered the military after the end of the draft (the survey was carried out during the spring of 1979). As to attitude and motivation for military service, these year groups may be reckoned as more homogeneous than earlier groups.

Within the forces, there have been significant changes
in many of the factors that have been recognized as having
an impact on recruitment and retention, among these:

a. a higher proportion of women have entered the civ-
ilian and military work force, with a simultaneous
demand on the married men to share in the housework and
upbringing of children

b. the general educational level has been increasing,
and with a higher rate within the black than white race

c. earlier civilian income differences due to discrim-
ination of blacks have almost entirely disappeared among
those with high school or higher education

d. unemployment rates have increased seriously, and job
security has therefore become constantly more important.

One of the main manpower problems in the military today,
is to retain the personnel after their first enlistment per-
iod. Much time and money have been invested in the personnel
(recruitment, training, personal equipment, pay and benefits),
while their performance often is first reaching a satisfactory
level in the last part of the period.

The retention rate for first-term enlistees has been
especially low during the late seventies--around 35%--but
also among those who end their second term, the retention rate
of 68% is reckoned as too low [Ref. 1].

These low retention rates, especially among first-termers,
is the problem which will be investigated in this study.

B. THE PURPOSE OF THE STUDY

The purpose of this study is to present some of the
factors that seem to be of significant importance for

enlisted retention in U.S. Navy according to the most recent military attitudinal survey.

Emphasis will be given to factors that to some extent can be controlled by the Navy.

As it is assumed that the retention rates may differ significantly among the various Navy ratings (due to different career patterns, work environments, and civilian job opportunities), the various ratings will be studied separately and compared.

II. METHODOLOGY

A. CONDUCT OF THE STUDY

The 1978 DoD Survey of Enlisted Personnel is one of a
series of interrelated data collection efforts of the Rand-
DoD Survey Group. One of the objectives of this group is to
provide and examine policy-sensitive information about the
military life cycle. This survey focuses on the in-service
population, the men and women on active duty in all four
Services.

The survey is the only one administered to personnel in
all Services from which valid statistical inferences can be
drawn concerning the entire military population. It has pre-
viously been conducted in 1971, 1973 and 1976. Modification
and improvements in questionnaires and samples over the years
have made it difficult to use the survey material to measure
various changes in attitudes and characteristics. However,
the present survey contains rich information for major research
issues, such as retirement, pay, promotion, military environ-
ments, social problems, readiness, and retention. It is
emphasized that the sample is cross-sectional. Therefore,
the data is not from the same people surveyed repeatedly over
a number of years, but from people who serve in different
enlistment periods at a certain time.

Four different questionnaires were used - two for enlisted personnel and two for officers, generally covering the following topics:

a. Form 1 (Enlisted Personnel): Economic issues, civilian employment, different reenlistment options, and retirement.

b. Form 2 (Enlisted Personnel): Rotation experience, promotion, and utilization of women.

c. Form 3 (Officers): A variant of Form 1, adopted for officers.

d. Form 4 (Officers): A variant of Form 2, adopted for officers.

This study used data from Form 1 exclusively.

The sample design of the survey was based on expected response rates and the need for a statistically significant number of usable responses in each cell of the stratification.

Within each Service, the basic stratification variable for enlisted personnel was years of service (YOS), and within the two first YOS groupings (0-4 and 5-8), there was a further stratification by time remaining in enlistment contract (time to ETS). Finally, supplemental samples of enlisted women and blacks were selected to allow for special analyses. The nine cells resulting from this stratification are shown in Table I [ref. 2].

B. THE SAMPLE

This thesis, investigating factors that influence enlisted retention, is based on data from 6508 U.S. Navy enlisted

TABLE I[*]

SAMPLE STRATIFICATION FOR ENLISTED PERSONNEL

Sample Cell No.	Years of Service (YOS)	Time remaining in contract (ETS)
1	0 to 4	≤ 1
2	0 to 4	> 1
3	5 to 8	≤ 1
4	5 to 8	> 1
5	9 to 12	
6	13 to 16	
7	17+	
	Supplemental samples	
8	Additional females	
9	Additional blacks	

*See reference 2

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respondents in the 1978 DoD Survey of Enlisted Personnel
(Form 1).

For initial, general studies, the entire sample was
utilized. For further, more detailed analyses, the respon-
dents were included either if they were in the last year of
their first, second, or third enlistment term, or if they
had an extension to their enlistment period. The reason why
only those who were close to the end of their enlistment term
were included in the detailed analyses, will become evident
under the discussion of the retention criterion.

Contrary to the common method of gathering all non-whites
into a group in order to be able to use a variable to con-
trol for race differences, this study includes only blacks
and whites. This is based on the assumption that fundamental
differences may exist between the various minorities as to
attitudes, education, socio-economic background, ability to
accept the military way of life, etc. To mix the minorities
together into one group may therefore distort the findings.
Instead, similar studies should probably be carried out for
the other ethnic groups.

C. THE ANALYSIS

1. Electronic Data Processing

All electronic data processing was carried out on
the Naval Postgraduate School's IBM computer. The Statistical

Package for the Social Sciences (SPSS) was used in all auto-
mated, statistical analyses [ref. 3].

2. The Retention Criterion

Two major problems had to be solved in order to use
the survey data for retention analyses:

  a. The accuracy of "retention intention," as a predic-
tor for later, actual behavior, and

  b. How to measure "retention intention."

Since the survey was not of the longitudinal type,
and did not follow up the respondents' current reenlistment
intentions with comparisons of actual reenlistment behavior,
it was necessary to take steps to ensure that the sample had
a highest possible correlation between intention and later
behavior.

According to Aizen and Fishbein [Ref. 4], an individ-
ual's intention is generally the immediate and most accurate
determinant of behavior, but certain conditions exist:

  a. There must be correspondence between measure of in-
tention and measure of behavior as to the target (i.e.
the job), the action (i.e. reenlist or leave), the time
(i.e. at the end of the current enlistment term), and
the context (i.e. the military).

  b. Intentions change over time. The longer the time
interval, the less accurate is the prediction of behavior
from intention. In other words, the closer to the deci-
sion point, the more accurate is the intention as a
predictor of behavior.

  c. Aggregate intentions are much more stable than indi-
vidual intentions over time, because incidents that hit
individuals--like injuries, illness, pregnancy, money
losses, etc.--are likely to balance out at the aggregate
level. Predictions of behavior from intentions at the
aggregate level are therefore often remarkably accurate.

Also Chow and Polich [Ref. 5], found a close match between the intentions to reenlist and actual reenlistment in their recent study of first term retention in the Army, Navy and Air Force. That particular study was based on a survey of 4,000 first term enlistees in 1976 who all had less than one year left of their contract period. The enlistees' expressed intentions were compared with their actual behavior one year later.

The other problem was that the survey did not contain a question which asked the sample directly whether they intended to reenlist or not under the current conditions, though they were asked several questions about their likeliness to reenlist under different reenlistment options. A dummy variable to show the respondent's reenlistment intention had therefore to be derived from the answers to the following questions:

   a. When you finally leave the military, how many total years of service do you expect to have?

   b. To the nearest year and month, how long have you been on active duty? (If you had a break in service, count current time and time in previous tours.).

The information from the last question was stored in the data file in months, while question a, above, was stored in years. The latter was multiplied by 12, to make the answers comparable.

Those who had stated a difference of less than 48 months between total length of service (LOS) and current LOS,

were assumed to intend to leave, while the others were assumed to intend to reenlist. The retention intention dummy variable was given the value "1" for those who intended to reenlist. These will hereafter be called "stayers", and the others will be called "leavers".

In order to measure the quality of the created dummy variable as an indication of retention intention, it was tested in crosstabulations against four different survey questions, which all were assumed to contain different answers from those who intended to stay and from those who intended to leave. Only those who were in their 4th year of service or had an extension to their first enlistment period were included in the test, since only those groups will be included in the detailed study, as explained later.

The four questions were as follows:

a. What do you think your chances are of being promoted to the next higher pay grade?

b. Think for minute about other military personnel who have the same total years of service that you have. Which of the following statements best describes when you expect your next promotion?

c. How soon do you expect your next promotion?

d. Mark the three most important reasons why you would leave the service. (The alternative answer which was included in this test, was: "Does not apply, have not considered leaving the service").

For the three three questions above, the respondents were asked to mark a point on a Likert scale, or mark one of the following optional answers:

a. Does not apply, I plan to retire

b. Does not apply, I plan to leave the service soon

c. Does not apply, I do not expect any more promotions.

Question d. above was a dummy variable, which would contain the value "1" if that particular, optional answer had been marked.

The results of the crosstabulations are shown in Tables IIA to IID. As can be seen from Tables IIA to IID, significant differences exist between the "stayers" and "leavers":

a. Between 35% and 55% of the "leavers" have answered that they will leave soon, while only around 1% of the "stayers" have given that answer (Table IIA, IIB, IIC).

b. Between 8% and 9% of the "leavers" did not expect any more promotions, while only .7% of the "stayers" had the same, pessimistic opinion (Table IIB and IIC).

c. .9% of the "leavers" expected a promotion later than 4 years from the date that they were surveyed (this indicates a minor error in the retention variable), while 10.1% of the "stayers" expected their next promotion to be so far out in time (Table IIC).

d. .4% of the "leavers" have answered that they have not considered leaving the service, (which indicates another, minor error in the retention variable), while 21.9% of the "stayers" have never considered leaving.

The contradictions that have emerged by testing the derived retention variable against four, different questions as described above, show that around one percent of the sample has inconsistent answers. Since it is not to be expected that all the respondents in such a survey have clear, consistent opinions about all the questions, some inconsistencies among a respondent's answers are to be expected. (As

TABLE IIA to IID

A. TEST OF THE RETENTION INTENTION VARIABLE

	Retention Intention	
Chances for pay grade promotion	Leave	Stay
No Chance - Fair possibility	14.3%	15.5%
Fairly good possibility - Certain	30.4%	83.4%
Does not apply, I plan to retire or leave the service	55.3%	1.1%
% Distribution	75.6%	24.4%
N	2265	

B. TEST OF THE RETENTION INTENTION VARIABLE

	Retention Intention	
Next Promotions, compared with others	Leave	Stay
Earlier than most people	19.3%	38.8%
Same as most people	23.1%	45.0%
Later than most people	13.2%	15.5%
Do not expect any more promotions	8.0%	0.7%
Plan to leave	35.9%	0.1%
Plan to retire	0.6%	0.0%

C.   TEST OF THE RETENTION INTENTION VARIABLE

How soon do you expect your next promotion?	Retention Intention	
	Leave	Stay
In less than 4 years from now	48.7%	88.7%
More than 4 years from now	0.9%	10.1%
Does not apply, I do not expect promotion	9.0%	0.7%
Does not apply, I plan to leave service soon	40.5%	0.1%
Does not apply, I plan to retire	0.8%	0.0%

D.   TEST OF THE RETENTION INTENTION VARIABLE

Dummy Variable: I have not considered leaving the Service	Retention Intention	
	Leave	Stay
Marked (1) (i.e. The respondent has not considered leaving the service)	0.4%	21.9%
Unmarked (0) (i.e. The respondent has considered leaving the service)	99.6%	78.1%

an example, the number of respondents who answered "Does not apply, I plan to leave the service soon", varied between 874 and 947). Nothing has therefore been done to eliminate the minor error in the retention variable, and it is assumed to have no systematic effect on the results of the study.

In order to conform to the conditions given by Aizen and Fischbein when using intention as a surrogate for behavior (see page 16), only the last year group in each enlistment period plus those who had obtained an extension to their enlistment period, were used in the detailed studies. These groups were all quite close to the point in time when a decision would have to be made, and a high correlation is therefore probable between intention and behavior. Chow and Polich (see page 17) also based their study on enlistees with less than one year left of their contracts.

By selecting the sample as described above, and using the retention variable as a predictor only at the aggregate level, Aizen and Fishbein's conditions (page 16) should all be satisfied in this study.

3. General Analysis

The factors that will be included in this retention analysis in order to measure their effect on the decision to reenlist, are primarily those factors that are subject to policy control by the DoD, such as military compensation and benefits, promotion opportunities, and job environment. Also the characteristics of the respondents and their

environment will be included, if they seem likely to have an effect on the reenlistment decision.

The general analyses which will be carried out, will be based on the following sample:

a. Except for the first analysis, which describes the retention intentions for each of the 12 first years in service, the sample consists of the last year group in the three first enlistment periods (i.e. 4th, 8th, and 12th year), plus those who are serving in an extension of one of the three first enlistment periods.

b. The sample consists of only blacks and whites.

The analyses are as follows:

a. A description of how the intentions to reenlist varies over the 12 first service years, based on current conditions. Retention intentions between blacks and whites, educational levels, and whether the respondents serve within their ordinary contract period or have an extension will be discussed. These analyses are carried out to get an understanding of how the retention intention changes over the years--also within each enlistment period--and to see the impact of the mentioned factors.

b. A further description will be made of how intention to reenlist varies over the three first enlistment periods, with sex as the controlling variable. Since it is a general belief that women--especially those in the youngest age groups--stay for a shorter period than men in their jobs because they get married and/or become pregnant, it is assumed to be of interest for the military policy makers to know to what extent that belief is in accordance with reality.

c. A description will be made of how intention to reenlist varies over the three first enlistment periods between those who serve onboard ships and those who serve ashore. This analysis may indicate that enlistees find sea duty more attractive in some periods of their military career than in others.

d. An analysis will be made of the importance of various bonus alternatives on the intention to reenlist. Separate analyses will be carried out for different educational levels. It is assumed that the bonus offers have a stronger impact on lower educated personnel than on those

with higher education, due to the latter group's higher, civilian earning opportunities.

e. A measure will be made of the consequences on retention if the probability to be promoted was to be reduced by 50%. A reduced chance for promotion will both affect short term and long term income, retirement benefits, and status, and will probably affect younger personnel more than those who are closer to retirement. In order to measure the respondents' feelings about it, their intention to reenlist without a bonus and with a reduced promotion probability will be compared.

f. The enlisted personnel were asked to mark the three most important reasons why they would leave the service. They were given 16 different alternatives to choose among, covering financial reasons, job factors, social aspects and other reasons. The frequency with which each of the reasons was given will probably indicate their general importance for retention. Such an analysis will be carried out to discriminate between leavers and stayers, and between people in different enlistment periods. The most frequently mentioned reasons will be studied in more detail in order to find the effects of education, race, sea duty, family status, and sex.

4. Analysis of Differences Among the Various Ratings

Initially, it was intended to include the last year group of each of the first three enlistment periods in the detailed study, primarily in order to achieve a satisfactory number of respondents in each rating. However, it turned out early in the study that attitudes about various topics, housing conditions and reasons for staying or leaving varied significantly between people in different enlistment periods. To combine younger and older groups of enlistees in the same study would, therefore, only confuse the results and make the results less usable for personnel management purposes.

The detailed study of variations among the ratings is therefore based on the last year group of first-term

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enlistees plus first-term extenders only. This group is also most important to control because:

a. First termers are the most numerous group, and have the lowest retention rate, according to earlier studies and the general part of this particular study.

b. If the military does not succeed in making a first termer reenlist, it may never get the chance again. In other words, before somebody can reenlist from the second or third enlistment period, he or she must have reenlisted after his/her first term.

At least in the short run, personnel policy makers are therefore assumed to be most interested in learning about those factors that need changes in order to improve the retention rate of first termers.

The enlistees are given different ratings - and therefore different work - based partly on their education, mental category, and interests, and partly on the Navy's needs.

The abilities, conditions, and opportunities for personnel in different ratings are assumed to vary significantly, as follows:

a. People in some ratings are probably more needed at sea duty than for service ashore.

b. For some ratings military specialist training is provided. This, together with their original education and abilities, may make the actual personnel especially attractive for certain civilian jobs, and may result in good civilian job offers and low Navy retention. On the other side, since factors as educational level, personal characteristics and abilities probably have a smaller impact on total military earnings than they would have on civilian earnings, it may be that the military pays more than necessary (i.e. "rent") to recruit and retain people in certain categories.

c.   People in some ratings probably earn more money than others, due to allowances for special services (sea pay, jump pay, etc.) and pro pay.

d.   The work environment may vary as to supervisors, peers, job variation, challenges etc. for people with different ratings.

e.   The living conditions for people with different ratings and their families may vary, as to civilian/military housing, spouse's ability to get work etc.

If the assumptions above turn out to be correct, it should be of interest to the military personnel policy makers to be aware of the differences, so that appropriate actions can be taken to control retention from the different ratings.

As previously mentioned, in the detailed analysis the purpose will be to study differences that exist in attitudes, retention rates, conditions, and opportunities among personnel in different ratings, and thereby try to explain variations in retention.

The following aspects will be covered:

a.   Working and living conditions:

- proportions of personnel on sea duty

- work hours, and hours on call/duty

- reasons given for leaving

- income and allowances

b.   Civilian opportunities:

- comparisons of military and civilian work conditions

- expectations about civilian income opportunities

- financial "loss" by staying in the military

c. Retention elasticities: How does the retention
intention change under various reenlistment alternatives:

- a $4000 reenlistment offer

- an $8000 reenlistment offer

The detailed study will conclude with a section with
comments on each of the 16 ratings which have the largest
sample sizes in the survey. The purpose is to emphasize
those factors that seem to have the most impact on the reten-
tion rate for these particular ratings.

III.   GENERAL FINDINGS

A.   CHANGES IN REENLISTMENT INTENTION OVER THE YEARS OF SERVICE

1.   Results

Based on the retention criterion described earlier, an SPSS "Breakdown" procedure was used to compute aggregate retention intention and to determine whether it varies with years of service.   The sample was divided in separate groups, depending on:

a.   educational level

b.   race (i.e. blacks and whites), and

c.   whether they were serving in their ordinary enlistment period or were serving during an extension.

The distribution of educational level within the total sample is presented in Table III.   The table shows that the percentage of respondents with less than a high school diploma is only 13.2, or 723 respondents.   When these respondents are divided into groups based on years of service, the groups are generally becoming too small for statistical analyses.

For blacks in their ordinary enlistment period, results were obtained for people with High School diploma or college education (people who have marked in the survey that they have one or more college years of credit, are called "college" in this study) up to and including the 8th year of service.   The number of blacks in the survey with either lower education or more years of service is too low for

TABLE III

THE RELATIVE DISTRIBUTION OF EDUCATIONAL LEVEL IN THE SAMPLE

Educational Level	Race		Total
	Black	White	
Primary school only	.3	.1	.2
High school years without diploma	6.0	3.6	4.1
GED	6.8	9.4	8.9
High school with diploma	52.9	53.3	53.2
College credit	34.0	33.5	33.6
N = 5502	100.0	100.0	100.0

reliable statistical results. The results are shown in Figure 1a.

For whites, results were achieved up to and including the 12th year of service, but not longer. And, also among whites, the number of respondents with less than a high school diploma was too low for reliable statistical analyses to be performed. The results are given in Figure 1b.

The analysis of retention rates among those with an extension to their original contract, gave statistically significant results for personnel with a high school or college education, serving in one of the first three enlistment periods, as shown in Figure 2.

The general retention pattern was, as shown in figure 1a and 1b, that the retention rate reached its lowest point in the 4th year of service (i.e. the last year of the first enlistment period). Only between 10 and 15 percent of the respondents in that particular year group expressed the intention to reenlist.

Among those who have reenlisted for the first time within the last year, the attitude toward reenlistment was much more positive, and, as it can be seen, around 40% of those in their fifth year of service intended to reenlist again. Since these people already have taken the decision once, and belong to the minority which decided to stay, one would expect a high retention intention rate - perhaps even higher than what was the case.
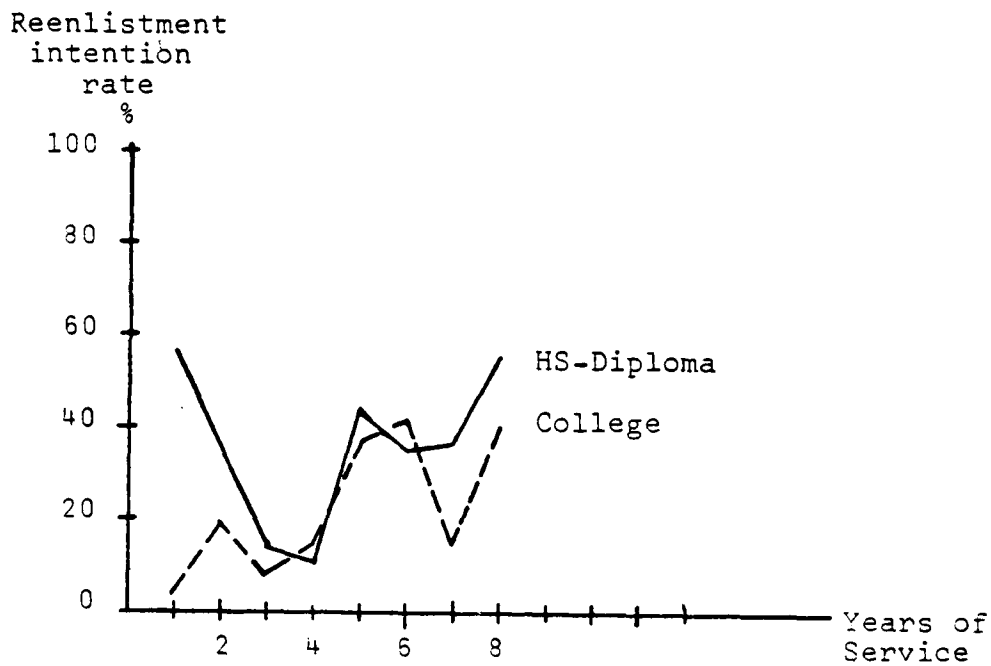
a. Black Personnel
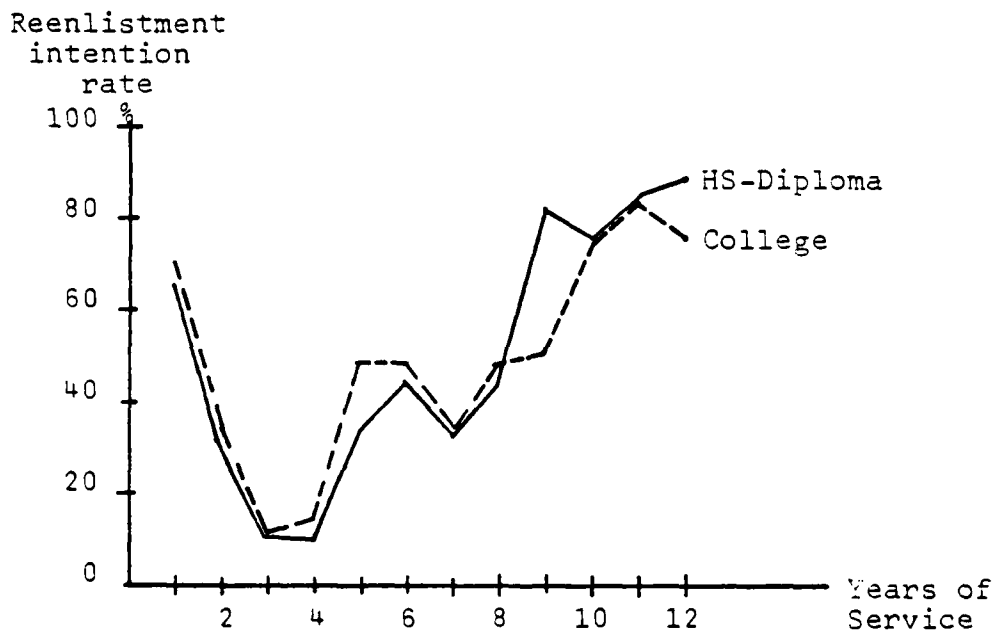
b. White Personnel

Figure 1. Intentions to Reenlist, Based on Current
Reenlistment Conditions (The Sample consists
of Personnel in Their Ordinary Contract
Period).

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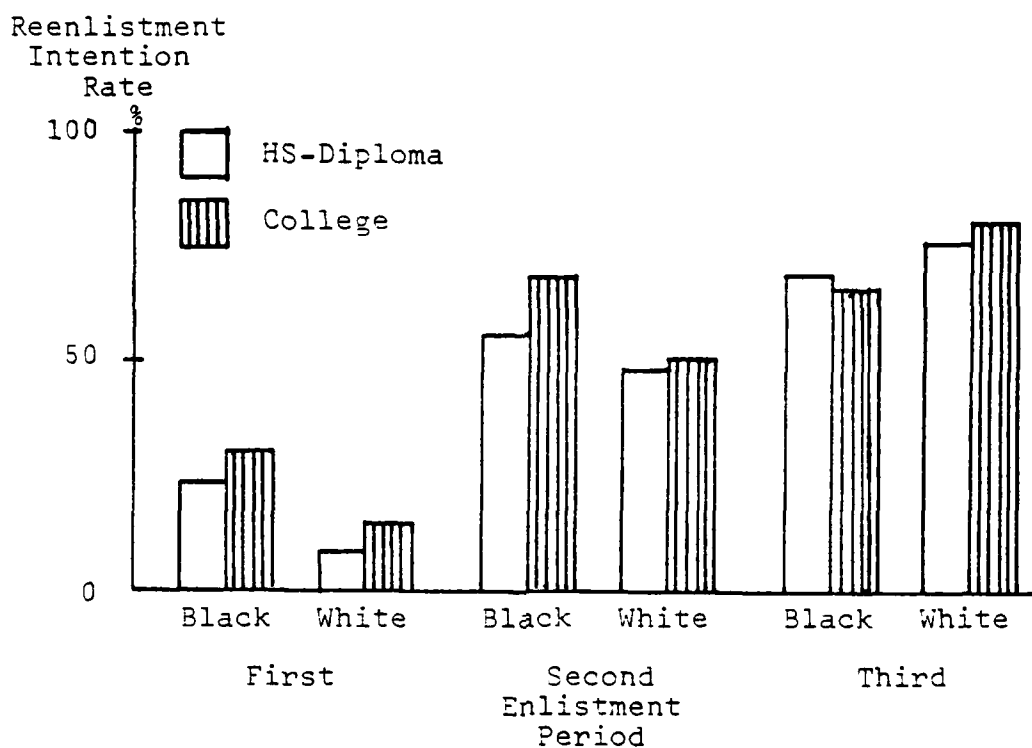
Figure 2. Intentions to Reenlist, Based on Current Reenlistment Conditions (The Sample consists of Personnel with an Extention to Their Enlistment Period).

The retention rate then dropped again, from 40% in the fifth year to reach a new low in the seventh year, but increased to around 45% in the last year of the second enlistment period.

Again, the pattern showed a steep increase in reenlistment intention (for whites only) in the 9th year, among those who have just reenlisted for the second time, and the rate stayed beyond 75% during the whole third period, with a slightly upward trend.

The retention patterns for both races and for those with high school diplomas or college education tracked each other most of the time. The biggest differences were:

a. Black people with college education had a very low retention intention rate all through the first enlistment period. For the seventh and eighth year, they also had a lower intention to reenlist (15%) than any other group.

b. White enlistees with high school had a lower retention rate than whites with college in the first year of the second enlistment period, while the situation was opposite in the first year of the third enlistment period.

c. Within the white sample, the college group had a slightly higher intention to reenlist than those with high school throughout the first eight years, but from the 9th year, the situation was reversed.

Among those who served in an extension of their contract, the retention intention rates were quite similar to those of the year groups 4, 8, and 12 (Comparison of Figure 3 with Figures 1 and 2). The exceptions were:

a. Black first term "extenders"[1] had a retention inten-
tention rate of around 25%, compared with around 12.5%
for blacks in their fourth year.

b. Black second-term extenders with college education
seemed to be more likely to reenlist than the similar
group with eight years of service.

Among the extenders, those with college background

had generally a higher intention to reenlist than did enlist-

ees with only a high school background.

2. Conclusion

The lowest retention rates were found among first-

term extenders and among first termers in their last contract

year. The detailed study later will concentrate on these

people.

In the further general analyses, the sample will con-

sist of the last year group in each of the three first con-

tract periods and extenders. The other year groups will be

excluded from consideration because of the relatively long

time span to a reenlistment decision, as described earlier

(page 16).

Since the retention intention patterns of blacks and

whites were similar and of the same magnitude--especially

among those in the last year of each contract period--the

further general analyses will not discern between the two

races. Neither will the detailed study of rating groups.

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[1]People who serve during an extention to their
enlistment period.

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B.   RETENTION INTENTION DIFFERENCES BETWEEN WOMEN AND MEN

    1.   The Sample

        Figure 3a shows how the retention intentions varied between women and men.

        In order to control for different retention intention rates between different educational levels and between those who had sea duty or served ashore, the sample consisted of only enlistees with high school or higher education, and they all served ashore. Choosing respondents who served ashore only, was done both because of the low number of women who served onboard ships, and because they were not eligible for all enlisted jobs onboard. Retention intention rates obtained among women and men on sea duty would therefore hardly be comparable.

        For women, the number of respondents in their third enlistment period was too low to warrant analyses.

    2.   Results

        Contrary to what many would have expected, the retention intention rate for women was as high - or even higher for extenders - as men's among first termers.

        In the second enlistment period, the retention intention rate for men was the double of women's, except for extenders where women and men had almost identical retention intention rates.

        Women who had an extension to their ordinary enlistment period seemed much more likely to reenlist than women

a. Women and Men Serving Ashore.
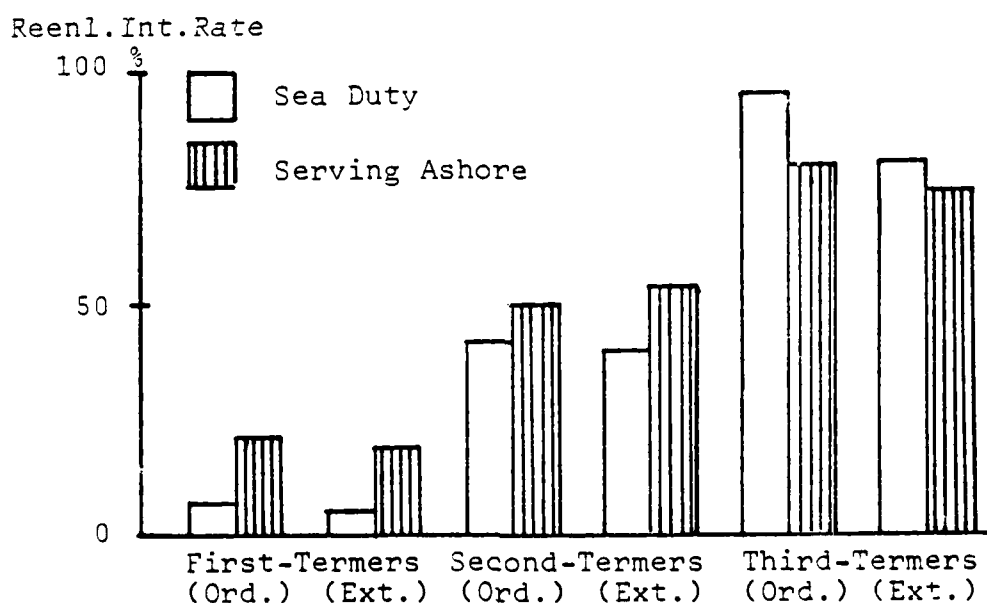
b. Men Serving at Sea or Serving Ashore.

Figure 3. Intentions to Reenlist, Based on Current
Reenlistment Conditions. The Sample,
which is Segregated by Sex and by Sea or
Shore Duty, consisted of Personnel with
HS-Diploma or College background only.

in their ordinary period. This was not the case among men for whom extended service seemed to have no influence on retention intention.

3. Conclusions

It seems to take women two enlistment periods before family considerations, dissatisfaction with the Navy, or other factors make their retention intention rates lower than those of men. In the detailed study of ratings presented later in this thesis, sex differences will be ignored.

The reasons for the relatively high retention rates among female extenders have not been investigated in this study. Various factors, like their marital status, job location close to the family, and special job assignments may explain some of the differences.

C. RETENTION INTENTION DIFFERENCES BETWEEN ENLISTEES SERVING ASHORE AND AT SEA DUTY

1. The Sample

Figure 3b shows how the retention intentions varied between enlistees serving ashore and at sea duty.

In order to control to some extent for different retention intention rates among different educational levels, the sample consisted of enlistees with high school diploma or higher education only. Since the number of women serving onboard ships was small, and since they only served in special jobs and onboard in special ships, women were not included in this particular analysis.

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2. The Results

Among those in their first enlistment period, the re-
tention intention rate was only around 6% for people on sea duty
compared with around 20% for people serving ashore.

The relative differences were much smaller in the
second enlistment period, where the retention rates were
around 41% and around 53%, respectively.

In the third period, the situation was reversed:
Those serving onboard ships had the highest retention inten-
tion rates.

While the retention intention rates were almost of
the same magnitude between those in their ordinary contract
and extenders during the two first periods, this was not the
case in the third period, where the extenders' retention in-
tention rates were significantly lower.

3. Conclusions

The analysis may indicate that it is especially hard
for the youngest enlistees to serve onboard ships. This may
be due to factors like:

  a. low income, and need for "moonlighting"

  b. a higher desire and need to be at home with spouse
and children

  c. a desire to use spare time on further education.

The reasons for the differences have not been analyzed parti-
cularly in this study, but are partly covered in the later
analysis of the respondents' reasons for leaving. Such a

study could indicate that sea duty should be covered to a larger extent by more senior enlistees in order to improve the overall retention rate. It is therefore assumed to be worthwhile to have a study made to investigate if retention rates would improve if age, income level, marital status, and a personal desire for more education were taken into account when people are ordered to serve onboard ships or ashore.

Also the reasons for the lower retention intention rates among third-term extenders (which is the case both in the previous analysis (Figure 3a) and here) should be closer investigated. One reason for the lower retention intention rates may be that some of the third-term extenders already have achieved 20 years of service and intend to retire shortly.

D. THE IMPACT OF TWO BONUS ALTERNATIVES ON RETENTION INTENTION

1. The Sample

The enlistees were asked to indicate their likeliness to reenlist if they received:

   a.   no reenlistment bonus

   b. $4000 in reenlistment bonus

   c. $8000 in reenlistment bonus

For each of the three bonus alternatives, they indicated their likeliness on a Likert scale with the values described below.

        0 (0 in 10) No chance

        1 (1 in 10) Very slight possibility

        2 (2 in 10) Slight possibility

3 (3 in 10) Some possibility

4 (4 in 10) Fair possibility

5 (5 in 10) Fairly good possibility

6 (6 in 10) Good possibility

7 (7 in 10) Probable

8 (8 in 10) Very probable

9 (9 in 10) Almost sure

10 (10 in 10) Certain

To measure the impact of the two different bonus offers, the reactions from those questions were compared with the reaction to the "no bonus" alternative.

Since it can hardly be expected that the bonus alternatives will have a significant, negative effect on retention among those who intend to reenlist under current conditions (according to the earlier explained retention criterion), the sample in this analysis consisted of only those who intended to leave under current conditions.

Those individuals who had not finished high school were excluded from the analysis.

The results are shown in Figures 4a and 4b, for people with a high school diploma and college, respectively.

The figures show only the average changes in likelihood, and do not provide information about how many change from a negative to a positive retention intention.

Another analysis was therefore carried out, to measure the percentage change in likeliness to reenlist. In

Likeliness to Reenlist

- No Bonus
- $4000 Reenl. Bonus
- $8000 Reenl. Bonus

(Ord.) (Ext.) First-Termers   (Ord.) (Ext.) Second-Termers   (Ord.) Third-Termers

a. Personnel With HS-Diploma

Likeliness to Reenlist

- No Bonus
- $4000 Reenl. Bonus
- $8000 Reenl. Bonus

(Ord.) (Ext.) First-Termers   (Ord.) (Ext.) Second-Termers   (Ord.) Third-Termers
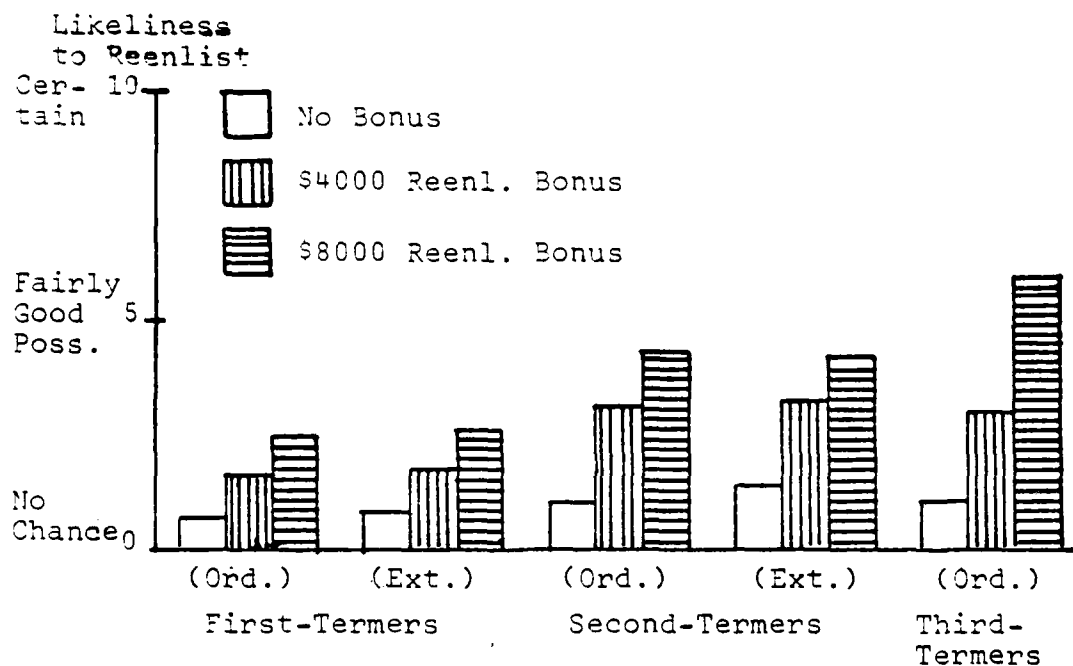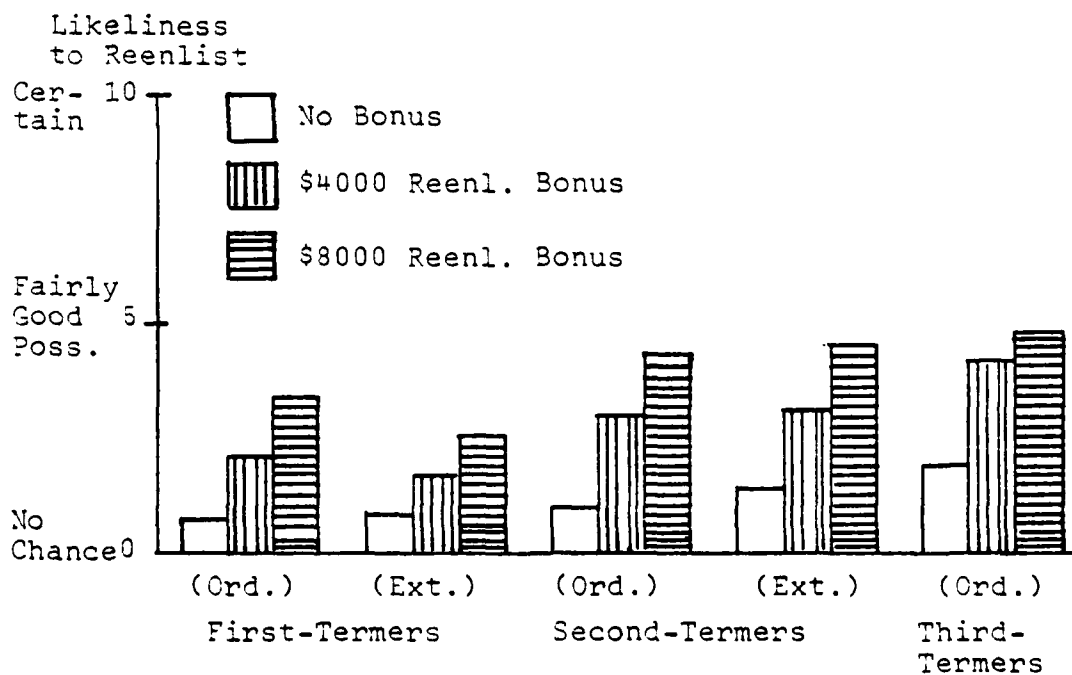
b. Personnel With College Education

Figure 4. The Importance of Bonus on Likeliness to Reenlist. The Sample consisted of those who intended to leave under current conditions.

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this analysis, both "leavers" and "stayers" (according to the earlier described retention criterion) were included.

First, it was necessary to redefine the respondents as "stayers" or "leavers" based on their answers on the sliding scale. A "Fair possibility" sounds positive, and somebody would probably set the dividing line between "Some possibility" and "Fair possibility". On the other hand, "Fair possibility" has been assigned the probability "4 in 10", or 40% only. The dividing line was therefore set between "Fair possibility" and "Fairly good possibility".

Then it was investigated what percentage of the sample changed from being a "leaver" --according to the "no bonus" alternative --to a "stayer" when they were offered $4000 or $8000 in reenlistment bonus. The results are shown in Table IV. The first column in Table IV presents the total number of personnel in each subgroups in U.S. Navy, according to weights that have been assigned to the respective respondents in the data file from the survey. The weights were provided by the Defense Manpower Data Center.

2. The Results

According to Figure 4a and Figure 4b, the bonus offers did influence the likeliness to reenlist. However, for one group only --those with high school diplomas in their third enlistment period --did the bonus of $8000 make the likeliness reach and go beyond a "Fairly good possibility".

TABLE IV

THE IMPACT OF BONUS ON RETENTION INTENTION

N (Weighted)	Educ.	End of Enl. Per.	% Change in intention to reenlist			
			$4000 Bonus		$8000 Bonus	
			Change	New reenl. rate	Change	New reenl. rate
46,759	HS	1	+9.1	19.3	+19.3	29.5
9,090	"	1x*	+13.8	22.8	+23.4	32.4
8,977	"	2	+17.1	62.1	+28.2	73.2
8,098	"	2x*	+14.4	63.4	+22.5	71.5
2,434	"	3	4.0	94.0	+9.8	99.8
19,727	College	1	+12.2	27.2	+26.6	41.6
5,313	"	1x*	+7.8	23.8	+19.1	35.1
6,257	"	2	+12.5	60.5	+20.8	68.8
7,371	"	2x*	+14.2	66.2	+25.7	77.7
2,381	"	3	+11.3	86.0	+10.1	84.8

* x indicates extended period

From Table IV, it can be seen that the bonus offers increased the number of stayers between 4 and 28%, depending on years of service and education. For several groups, the $8000 bonus offer increased the number of stayers with more than twice the effect of the $4000 bonus offer.

In general, the bonus offers had the lowest impact on reenlistment among those in the end of their third period, and the $8000 bonus offer had a less positive effect than the $4000 bonus on this group's college subclass' retention intention. The low effect is probably due to the fact that this group's enlistment rate is already high under current conditions. The group may also be negative toward having a high bonus established for everybody while their own career is approaching an end ("we managed without the bonus during our first years").

The analysis will be continued in the next chapter.

E. THE ECONOMICAL CONSEQUENCES OF THE TWO BONUS ALTERNATIVES

1. The Method

In order to measure the total savings per person from various bonus offers, the following information must be available (per person).

RC - Recruitment costs (variable)

TC - Training Costs

W_1 - Pay, allowances and costs of benefits during the first term

W_2 – Pay, allowances and costs of benefits during the second-term

P_1 – Average, first term productivity[1]

P_2 – Average, second term productivity

BC – The costs of the bonus offer

The savings (S) per retained first termers would then be:

$$S = \frac{RC + TC + W_1}{P_1} - \frac{W_2 + BC}{P_2}$$

The total savings of retaining first termers would be

$$TS = \sum_{i=1}^{n} S_i N_i D_i$$

where S is the savings per person, in one particular category (ref. formula above),

      N is the number of personnel in a category,

      D is the (positive) percentage change in reenlistment,

      i a group (based on educational level and contract period).

The formula for S above can be made more accurate by

  a. making present value considerations, and by

  b. taking retirement costs into account.

For b, above, the probability that the person who reenlists will stay until he/she is eligible for retirement benefits must also be considered. The general formula for computing the savings by retaining a person from

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[1] A productivity of "1" should be the standard which one tries to achieve. Therefore, if a person's performance is estimated to be 40% of the goal, the productivity rate is .4.

any enlistment period would be as follows:

$$S = \frac{RC[1+i]^m + \frac{TC}{(1+i)^n} + \frac{(1-(1+i)^{-4})}{i}(AW_1)}{P_1} -$$

$$\frac{\frac{(1-(1+i)^{-4}}{i}(AW_j) + \frac{BC}{(1+i)^4}}{P_j} - \frac{\frac{1-(1+i)^{-r}}{i}(RW)}{(1+i)^q}(PRj)$$

where:

S = Savings per person

RC = Recruitment costs (which are assumed to incur before the new recruit enters service).

TC = Training costs

AW_1 = Annual wages, allowances and value of benefits during the first term

P_1 = Average productivity during the first-term

AW_j = Annual wages, allowances and value of benefits during the jth enlistment period (j = 2 to 5)

BC = Value of bonus offer assumed paid in full four years after reenlistment

P_j = Average productivity during jth term (j = 2 to 5)

RW = Annual retirement pay (50% of salary in the 20th year of service)

PR = Probability that a person in the jth enlistment period stays in the military til he/she is eligible for retirement pay

m = number of years that recruitment costs are paid in advance before the recruit starts his/her service (assumed to be one lump sum)

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n = number of years from the recruit
    starts the service, until training
    costs are paid (assumed to be one lump
    sum)

r = number of years that retirement pay will
    be paid, if the person stays till he/she
    is eligible for retirement pay

i = interest rate

j = enlistment term

q = no. of years till retirement (16, 12, 8 or
    4 for 2nd, 3rd, 4th, and 5th enlistment
    period respectively)

The present value formulas which are implemented in
the formula above, are described by Dowlin, Martin, and Scott
[Ref. 6].

In order to use the formula for computation of savings
per person and total savings, the data in Table V were cre-
ated. The data is partly computed, and partly assumed, as
follows:

a. Annual wages and allowances (AW_j) are based on the
survey data, but rounded.

b. Average productivity (P_j) is assumed, but partly based
on Gay and Albrecht's consideration [Ref. 7).

c. Retention rates are computed from the survey data,
and are the weighted sums of retention intention rates in Figures
1,2,3, and in Table IV.

d. The probability that the person will stay in the
military till he/she is eligible for pension (PR) is
the product of the future retention rates.

e. The number of years to retirement (q) is computed
as the difference between 20 years of service and
current YOS.

f. Interest rate (i) is assumed.

TABLE V

VALUES ASSIGNED TO THE VARIABLES IN THE COST SAVING MODEL

Text	Symbol	Enlistment Period				
		1	2	3	4	5
Annual total, military pay	AWj	10,000	11,250	12,500	13,750	15,000
Average productivity	Pj	.4	.9	1.0	.9	.9
Retention rate, HS, $4000 bonus		.193	.621	.94	1.0	0
Probability retire, HS, $4000 bonus	PR		.583	.94	1.0	1.0
Retention rate, HS, $8000 bonus		.293	.732	.998	1.0	0
Probability retire, HS, $8000 bonus	PR		.73	.998	1.0	1.0
Retention rate, College, $4000 bonus		.272	.605	.86	1.0	0
Probability retire, College, $4000 bonus	PR		.520	.86	1.0	1.0
Retention rate, College, $8000 bonus		.416	.688	.848	1.0	0
Probability retire, College, $8000 bonus	PR		.583	.848	1.0	1.0
No. of years to retirement	q		16	12	8	4

Text	Symbol	All Enlistment Periods
Interest rate	i	12%
Payment of recruitment cost	m	.5 years before entry
Payment of training costs	n	.5 years after entry
No. of years with retirement pay	r	38 years
Annual retirement pay	RW	$7,500
Recruitment costs	RC	$2,000
Training costs	TC	$4,000

g. Time for payment of recruitment costs (m) and training costs (n) as well as recruitment costs (RC) and training costs (TC) are assumed.

h. Number of years that retirement pay will be paid (r), has been set to 38 years, or equal to an average life expectancy of around 76 years. This is in accord with the life expectancy data from the Bureau of Census (Ref. 13].

i. Retirement pay (RW) has been set to 50% of annual pay in the 5th enlistment period.

2. The Results

The following results do not claim any kind of generality, especially because of the rather randomly set productivity rates. As it will be shown later, variations in the productivity rates will have a strong influence on the savings.

The purpose of this chapter is primarily to:

a. present the cost savings model and a method for computation of the financial consequences from different bonus alternatives and from their corresponding changes in reenlistment rates, and

b. make a sensitivity analysis of the involved variables.

The results of the computations, along with the results of the sensitivity analysis which will be described below, are given in Tables VIA to VID.

The total annual savings for the U.S. Navy, based on the data in Table IV and V and the previously described equation for total savings (TS), are presented in Table VIII.

The sensitivity analysis was carried out to measure what impact a change in the values of different variables

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TABLE VIA

THE TOTAL, PRESENT VALUE SAVINGS BY RETAINING ONE FIRST-TERMER

Text	IIS				College			
	Bonus $4000		Bonus $8000		Bonus $4000		Bonus $8000	
	$	% Change	$	% Change	$	% Change	$	% Change
Savings based on data in Table V	44,019	Base	39,716	Base	44,652	Base	41,195	Base
10% increase in first-term productivity	35,776	-19	31,473	-21	36,409	-18	32,951	-20
10% increase in second-term productivity	47,727	+8	43,681	+10	48,361	+8	45,159	+10
10% increase in interest rate	44,523	+1	40,678	+2	45,011	+1	41,816	+2
10% increase in retirement pay	43,432	-1	38,982	-2	44,130	-1	40,608	-1
10% increase in training costs	44,964	+2	40,661	+2	45,598	+2	42,139	+2
10% increase in years with pension	43,991	0	39,681	0	44,628	0	41,166	0

TABLE VIB

THE TOTAL, PRESENT VALUE SAVINGS BY RETAINING ONE SECOND-TERMER

Text	HS				College			
	Bonus $4000		Bonus $8000		Bonus $4000		Bonus $8000	
	$	% Change	$	% Change	$	% Change	$	% Change
Savings based on data in Table V	35,289	Base	31,829	Base	36,555	Base	34,203	Base
10% increase in first-term productivity	27,046	-23	23,586	-26	28,312	-23	25,960	-24
10% increase in second-term productivity	38,971	+10	35,742	+12	40,238	+10	38,116	+11
10% increase in interest rate	37,354	+6	34,181	+7	38,372	+5	36,089	+6
10% increase in retirement pay	33,801	-4	30,250	-5	35,194	-4	32,861	-4
10% increase in training costs	36,234	+3	32,774	+3	37,500	+3	35,148	+3
10% increase in years with pension	35,218	0	31,754	0	36,490	0	34,138	0

TABLE VIC

THE TOTAL, PRESENT VALUE SAVINGS BY RETAINING ONE THIRD-TERMER

Text	HS and College			
	Bonus $4000		Bonus $8000	
	$	% Change	$	% Change
Savings based on data on Table V	16,543	Base	13,718	Base
10% increase in first-term productivity	8,300	-50	5,475	-60
10% increase in second-term productivity	21,018	+27	18,451	+35
10% increase in interest rate	19,927	+20	17,221	+26
10% increase in retirement pay	14,053	-15	11,228	-18
10% increase in training costs	17,488	+6	14,664	+7
10% increase in years with pension	16,424	-1	13,600	-1

TABLE VID

THE TOTAL, PRESENT VALUE SAVINGS BY
RETAINING ONE FOURTH-TERMER

Text	HS and College			
	Bonus $4000		Bonus $8000	
	$	% Change	$	% Change
Savings based on data in Table V	(1,957)	Base	(4,781)	Base
10% increase in first-term productivity	(10,200)	-421	(13,024)	-172
10% increase in second-term productivity	2,901	+248	334	+106
10% increase in interest rate	2,405	+223	(300)	+94
10% increase in retirement pay	(5,875)	-200	(8,700)	-82
10% increase in training costs	(1,012)	+48	(3,836)	+20
10% increase in years with pension	(2,144)	-10	(4,969)	-4

TABLE VII

PRODUCTIVITY RATES AND INTEREST RATES THAT BALANCE
THE COSTS OF RECRUITING AND RETAINING PERSONNEL

a. Assuming that all other values in Table V are fixed, the
    following first-term productivity rates will result in
    cost balance between recruiting a new and retaining an
    enlistee.

Current enlistment period	HS		College	
	$4000 Bonus	$8000 Bonus	$4000 Bonus	$8000 Bonus
First-termers	.79	.72	.80	.74
2nd-termers	.65	.62	.67	.65
3rd-termers	.48	.47	.48	.47
4th-termers	.39	.38	.39	.38

b. Assuming that all other values in Table V are fixed, the
    following interest rates will result in a cost balance
    between recruiting a new and retaining an enlistee.

Current enlistment period	HS		College	
	$4000 Bonus	$8000 Bonus	$4000 Bonus	$8000 Bonus
First-termers	3.5%	4.0%	3.0%	3.5%
2nd-termers	6.0%	6.5%	5.5%	5.5%
3rd-termers	8.5%	9.0%	8.5%	9.0%
4th-termers	12.5%	13.5%	12.5%	13.5%

TABLE VIII

THE TOTAL U.S. NAVY SAVINGS BY ESTABLISHING A $4000 OR
$8000 REENLISTMENT BONUS FOR FIRST-TERMERS,
SECOND-TERMERS, AND THIRD-TERMERS[1]

$$TS = \sum_{i=1}^{n} SiNiDi$$

i	N	TS	
		$4000 Bonus	$8000 Bonus
HS 1st-termers, ord. service	46,759	$187 mill.	$358 mill.
HS 1st-termers, extended service	9,090	$ 55 mill.	$ 84 mill.
HS 2nd-termers, ord. service	8,977	$ 54 mill.	$ 81 mill.
HS 2nd-termers, extended service	8,098	$ 41 mill.	$ 58 mill.
HS 3rd-termers, ord. service	2,434	$ 2 mill.	$ 3 mill.
College, 1st-termers, ord. service	19,727	$108 mill.	$216 mill.
College, 1st-termers, extended service	5,313	$ 19 mill.	$ 42 mill.
College, 2nd-termers, ord. service	6,257	$ 29 mill.	$ 45 mill.
College, 2nd-termers extended service	7,371	$ 38 mill.	$ 65 mill.
College, 3rd-termers, ord. service	2,381	$ 4 mill.	$ 3 mill.
		$539 mill.	$955 mill.

[1]The savings are based on the previously made
assumptions in this chapter.

would have on the cost savings. The results are included
in Table VIA to VID (both the new, saved amount, and the
percentage change from the base). Only one variable was
changed in each computation. All other variables contained
the base values, as listed in Table V.

In conjunction with the sensitivity analysis, the
first-term productivity rate and interest rate which would
balance the costs of recruiting new and retaining "old" en-
listees, were computed. This was done by entering different
first-term productivity rates and interest rates into the
equation, until the savings (S) were zero. These rates are
presented in Tables VIIA and VIIB.

3. Conclusions

The savings per retained person and total savings, as
presented in Table VIA to VID and VIII, should not be used as
true savings, as explained above. However, the numbers do
give an indication about the magnitude of the sums that are
involved, and makes it quite obvious that such analyses
should be carried out. The sensitivity analysis also under-
lines the importance of accuracy for some of the variables.

The following, general conclusions can be drawn:

a. The savings per retained individual are highest for
first-termers while each reenlisted fourth-termer pro-
vides a loss, because of the retirement benefits for
which he will probably be eligible.

b. Bonuses should primarily be given to first-termers
and second-termers who reenlist, since the savings are
highest for those categories.

c.   The highest bonus gives the highest total savings, because of the steep increase in the retention rate.

d.   The most important determinants for the savings per retained person are the productivity factors. A small change in the first-term productivity rate makes big changes in savings, primarily when first-termers are compared with second-termers and third-termers.

e.   If first-termers' average, relative productivity rate is higher than around .75, it pays off to recruit new personnel instead of retaining first-termers and second-termers. On the other side, if first-termers' average productivity rate is lower than around .40, it is less expensive to retain third-termers and fourth-termers, in spite of the high retirement pay for which these persons will soon be eligible.

f.   Changes in the interest rates are also important, and make significant changes in the savings. If the interest rate in the computations is higher than around 13%, it is less expensive to retain third-termers and fourth-termers, than recruiting new personnel.

g.   Changes in the number of years that retirement pay will be paid (due to changes in average life expectancy) has almost no importance on the estimates. The reason is that the present value of money that is due 38 or more years into the future is very low, with current, realistic interest rates.

h.   The analysis emphasizes the importance of grouping the personnel into "homogeneous" groups before such analyses are carried out. In this particular analysis, the grouping criterions were: enlistment term, ordinary or extended service, and educational level. This thesis will later discuss the importance of grouping the personnel into groups according to their ratings, hypothesizing that retention rates and reactions to bonus offers differ significantly between ratings within the same enlistment term. Only when the personnel are grouped appropriately, will the results of similar analyses make it possible to use efficient and effective means towards each target group.

F. THE CONSEQUENCES OF REDUCED PROMOTION OPPORTUNITIES

   1. The Sample

        The sample in the survey was asked about their like-
liness to reenlist if the probability to be promoted to the
next higher pay grade was reduced by 50%. The respondents
marked their answers on a sliding scale identical to the one
used with the bonus questions.

        Two different methods were used to measure the
consequences:

     a. The average likeliness to reenlist with reduced pro-
     motion probability was compared with the likeliness to
     reenlist if no bonus would be paid. In this analysis,
     the sample consisted of only those who would stay under
     current conditions, since those who have decided to leave
     under current conditions will probably not be encouraged
     to stay if the promotion probabilities are reduced. The
     sample was divided into groups, based on enlistment
     period and educational level. The results are presented
     in Figures 5a and 5b.

     b. Since the previous method only shows the average
     change in likeliness to reenlist, another analysis was
     carried out to measure how many change from a positive
     to a negative reenlistment intention. In this analysis,
     both stayers and leavers --according to the retention
     intention criterion --were included. As in the analy-
     sis of the bonus alternatives, the respondents were
     redefined as "stayers" or "leavers" according to their
     answer on the sliding scale. The analysis measured the
     percentage of the sample that changed from a positive
     reenlistment intention if no bonus was offered to a
     negative reenlistment intention if the promotion prob-
     ability is reduced. The results are presented in
     Table IX.

   2. Results

        According to Figures 5a and 5b, a reduced promotion
probability will be received much more negatively among the
stayers than would no reenlistment bonus. In fact, only the

Likeliness
to Reenlist

a. Personnel With HS-Diploma

Likeliness
to Reenlist

b. Personnel With College Education
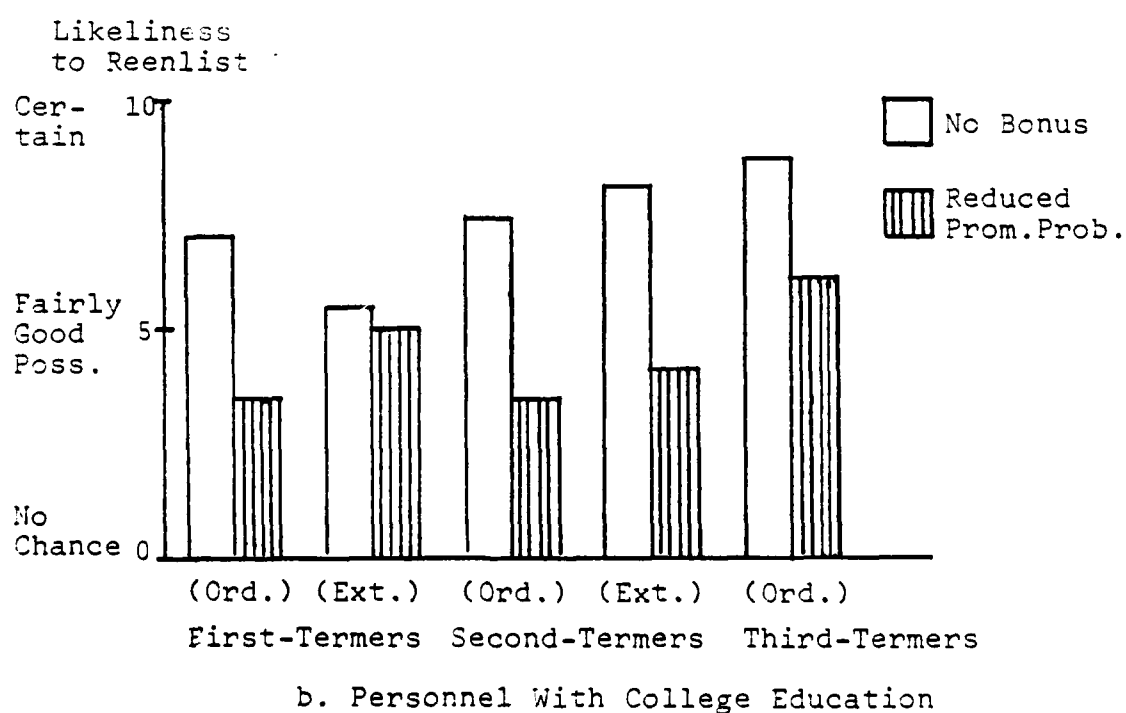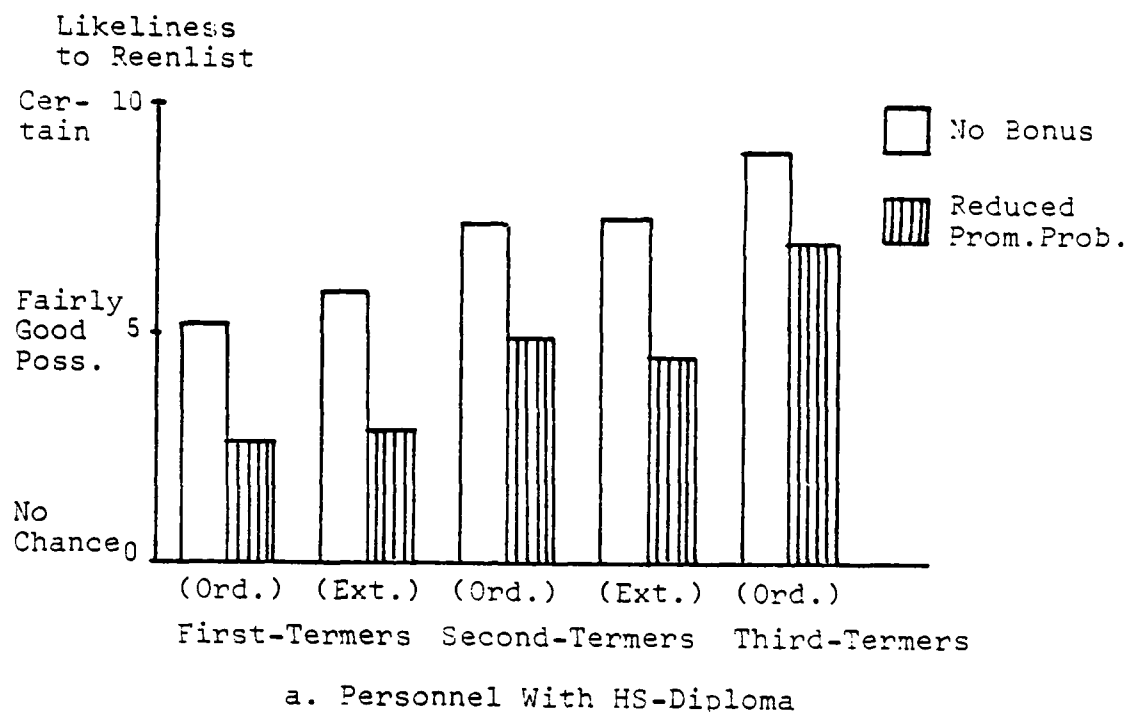
Figure 5. The Consequences of a Reduced Promotion
         Probability. The sample consisted of those
         who intended to reenlist under current con-
         ditions.

TABLE IX

THE IMPACT OF A REDUCED PROMOTION PROBABILITY
ON RETENTION INTENTION

Education	End of Enlistment Period	Change in Reenlistment Intention Rate	New Reenlistment Intention Rate
HS	1	-5.7	4.5
HS	1X*	-5.1	3.9
HS	2	-12.2	33.0
HS	2X*	-19.4	29.6
HS	3	-14.9	76.1
College	1	-3.4	11.6
College	1X*	-4.1	11.9
College	2	-24.9	24.1
College	2X*	-25.9	26.1
College	3	-29.7	47.3

* X indicates extended period.

third-termers keep the average likeliness to reenlist beyond a "Fairly good possibility". Table IX shows that a reduced promotion probability has the highest impact on likeliness to reenlist among the college group (in percent), and that the relative change increase with tenure. However, in numbers of individuals, a 5.7% change for first termers has a higher impact on drop in reenlistment than the third-termers 14.9%. The last column of Table IX, which shows the new reenlistment intention rates, shows that only around 4% of the first-term high school group would reenlist, and around 11% of those graduates with college background.

3. Conclusions

The new, extremely low retention rates among first-termers would have a severe impact on manpower stocks. Within a few years, almost all enlistees would be first-termers. The following example, based on Bartholomew and Forbes [Ref. 8] shows the impact of two different permanent retention rates on the manpower distribution 16 years later (Table X). The low retention rates in alternative A would almost "wipe out" experienced and high-productive enlistees, and would probably have severe consequences for the performance of military units.

A reduced promotion probability would influence the enlistees' annual income, future retirement pay, and their perception of status in the society. The financial consequences alone would probably be much more severe for the individuals than a lost bonus.

TABLE X

THE IMPACT OF TWO DIFFERENT RETENTION RATES
ON MANPOWER DISTRIBUTION 16 YEARS LATER

Enlistment Period	Alternative A		Alternative B	
	Retention	Manpower Distr. 16 Yrs. Later	Retention	Manpower Distr. 16 Yrs. Later
1st-termers	10%	81.3%	40%	52.1%
2nd-termers	50%	8.0%	50%	20.8%
3rd-termers	80%	4.1%	80%	10.4%
4th-termers	100%	3.3%	100%	8.3%
5th-termers	-	3.3%	-	8.3%

The financial consequences for the military of a re-
duced promotion probability can be analyzed with equations
analogous to those which were used in conjunction with the
bonus alternatives. Such an analysis has not been included
in this thesis.

As it will be described later, low income was the most
frequent reason given by enlistees who leave the military.
The present data therefore strongly indicates that a reduction
of the current or future income level for enlistees is not an
adequate option for the military.

G. THE MOST IMPORTANT REASONS FOR LEAVING THE MILITARY

1. The Sample

The surveyed personnel were asked to mark the three
most important reasons for leaving the military. They could
choose between 16 alternative reasons plus the optional "I
have not considered leaving" and "I plan to retire at the end
of my current term". The alternative answers cover financial
reasons, social reasons, and extrinsic and intrinsic job
factors.

The sample was grouped into year groups. As in the
previous analyses, only the last year group in each enlistment
period was studied. The sample was also divided into groups
based on the intention to leave or stay to make it possible
to compare and find out whether the groups gave different
priorities to the various reasons.

The results are presented in Table XI.

2. The Results

The table shows that the most frequent reasons to leave were (in order according to the number of responses):

a. Low pay/allowances

b. Better civilian job opportunities

c. Dislike being separated from my family

d. Reduction in military benefits

e. Plan to continue my education/use GI/VEAP-benefits

f. Disagree with personnel policy

g. Decline in quality of military personnel

h. Discrimination against military personnel based on race, sex, or rank

i. Dislike location of my assignments

j. Not enough opportunity for advancement

Other findings from Table XI:

a. "Disagree with personnel policy" was given relatively more frequently among leavers than stayers.

b. "Discrimination" was a relatively more frequent reason among the younger than the older enlistees.

3. Comparison of Military and Civilian Income Levels

Among the foremost reasons to leave, three of them had to do with income. While some psychological theories -- like Herzberg's Two Factor Theory (Ref. 9] --does not rank pay among the important factors for job satisfaction and tenure, there may be special circumstances that make this factor the overwhelmingly mentioned factor among the enlistees.

TABLE XI

FREQUENCY OF SELECTION OF REASONS FOR LEAVING THE MILITARY[1]

Reason to Leave	Leavers				Stayers			
	4[2]	8	12	16	4	8	12	16
Have not considered leaving	5	2	0	5	16	45	34	18
Plan to retire after this term	11	2	0	4	0	0	0	10
Not eligible to reenlist	13	2	0	0	1	4	1	0
Dislike location of my assignment	85	22	1	0	11	20	5	3
Frequency of PCS moves	25	16	2	0	2	9	1	2
Dislike separation from family	295	132	8	2	37	54	26	11
Family wants me to leave	68	17	0	0	2	4	1	1
Disagree with personnel policy	288	48	4	2	13	9	2	1
Discrimination (sex, race, rank)	99	20	1	0	13	13	2	1
Lack of opportunity for advancement	59	31	1	0	15	24	10	3
Low pay/allowances	474	139	6	3	53	67	22	18
Better civilian job opportunities	397	114	8	2	34	44	13	8
Reduction in military benefits	226	116	8	5	58	79	34	18
Decline in quality of military personnel	185	66	7	3	20	36	13	9
Unable to practice job skills	63	14	2	0	3	10	2	3
Bored with job	70	10	0	0	2	6	1	0
Don't like my job	59	15	0	0	6	7	1	1
Will continue education	386	56	3	1	21	21	3	3

[1]Data in table are number of responses. Each person could check up to three reasons for leaving.

[2]Years of service

A comparison has been made of military and civilian income levels based on data from 1978. The military sample consists of those with 4 years of service only, and they are compared with civilians aged 18-to-24 years old. The military income information is all contained in the survey. The civilians' earnings, which are collected from Current Population Reports [Ref. 10 and 11], are average earnings for employed Americans from all ethnic groups in the United States.

The formula for computation of Regular Military Compensation (RMC) takes the military tax advantage into account, and is in accordance with Chow and Polich's equation [Ref. 5]. Military earnings were calculated as follows:

a. Regular Military Compensation (RMC):

   (Basic pay + (Tax savings factor x

   (Basic Allowance for Quarters +

   Basic Allowance for Subsistence))).

b. Special Allowances:

   Jump pay, Sea pay, Submarine pay, Flight pay, and Pro pay.

c. Total, Military Income:

   RMC + Special Allowances

d. Household Income:

   Total military income + off duty work + spouse's earnings + social welfare payments.

These military individual and household incomes were compared with similar civilian incomes segregated by years of education (Tables XIIA to XII C). The tables show that

TABLE XII

COMPARISON OF MILITARY AND CIVILIAN EARNINGS (1978)

a. Military income and household income for first-termers

	Unmarried, No dependents	Married
Average, total military income	$8,721	$11,326
Average, military household income	$9,206	$14,209

b. Comparison of military and civilian incomes

	Elementary Completed	HS- Diploma	1-3 Yrs. College
Average civilian income (18-24 yrs. old) (Base)	$8,299	$10,503	$11,322
Military pay higher (lower), unmarried	$ 492	($ 1,782)	($ 2,601)
Military pay higher (lower), married	$3,097	$ 823	$ 4

c. Comparison of military and civilian household incomes,
   segregated by educational level of head of household.

	Elementary Completed	HS- Diploma	1-3 Yrs. College
Average, civilian household income (Base)	$11,425	$17,648	$19,407
Military pay higher (lower), unmarried	($ 2,219)	($ 8,442)	($10,201)
Military pay higher (lower), married	$ 2,784	($ 3,439)	($ 5,198)

the total military income for unmarried personnel is higher
than the average pay for civilians with elementary school,
but lower than the average pay for civilians with HS diploma
or some years of college education.

For married, military personnel, the total military
income was higher than civilian income at all educational
levels. The pay difference was highest for those with lowest
education.

Comparisons of household income showed that military
household income in average was much lower than for civilian
families, except for the group where the head of the household
had only elementary school education.

4. <u>A Deeper Analysis of the Most Frequent Reasons to Leave</u>

The reasons for which leaving the military were most
frequently given, were analyzed in more detail. The following
analyses were carried out:

   a. The percentage of the persons at each educational level
who had responded to the reasons "Low pay and allowances"
and "Better civilian job opportunities" was calculated.
It was hypothesized that these reasons were most frequently
given by personnel at a higher educational level. For
results, see Tables XIIIA and B.

   b. The extent to which race and current, educational
level influenced enlistees to leave to continue educa-
tion is shown in Table XIIIC.

   c. The extent to which the reason "Dislike being separ-
ated from family" was given among those with sea duty
compared to those with service ashore and among enlistees
with or without dependents is shown in Table XIIID.

   d. Whether those who "Disagree with personnel policy"
were mainly at sea duty, belonged to a large extent to
one of the races, or to one of the sexes is shown in
Tables XIIIE and F.

TABLE XIIIA to XIIIF

RELATIVE FREQUENCY OF ENDORSEMENT OF THE MOST
FREQUENT REASONS FOR LEAVING THE MILITARY BY
EDUCATION, RACE, SEX, AND SEA/SHORE DUTY

A. LOW PAY AND ALLOWANCES

Education	Enlistment Period	
	First Period	Second/Third
No Diploma	.6024	.3860
GED	.5063	.3930
HS	.4874	.3891
College	.5589	.3840

B. BETTER CIVILIAN JOB OPPORTUNITIES

Education	Enlistment Period	
	First Period	Second/Third
No Diploma	.2334	.1408
GED	.4500	.2591
HS	.5086	.3332
College	.4367	.3774

C.   CONTINUE EDUCATION

Race and Education		Enlistment Period	
		First	Second/Third
Black	No Diploma	Stat. Insign.*	.1569
	GED	.3395	Stat. Insign.*
	HS	.3933	.1474
	College	.4982	.1450
White	No Diploma	.2286	.1437
	GED	.1922	.0955
	HS	.3745	.0942
	College	.3119	.1657

D.   SEPARATION FROM FAMILY

Dependents	Enlistment Period			
	First		Second/Third	
	Sea Duty		Sea Duty	
	No	Yes	No	Yes
No	12.8%	20.2%	11.2%	24.0%
Yes	44.5%	66.6%	38.4%	55.0%

*Statistical Insignificant

E.   DISAGREE WITH PERSONNEL POLICY

Sex	Race	Enlistment Period			
		First		Second/Third	
		Sea Duty		Sea Duty	
		No	Yes	No	Yes
Males Only	Black	37.1%	21.5%	1.5%	5.7%
	White	27.8%	34.0%	8.8%	10.7%

F.   DISAGREE WITH PERSONNEL POLICY (cont.)

Sex	Race	Enlistment Period			
		First		Second/Third	
		Sex		Sex	
		Female	Male	Female	Male
Both Sexez	Black	Stat.* Insign.	25.6%	Stat.* Insign.	2.5%
	White	13.5%	32.1%	16.9%	9.4%

*Statistical Insignificant

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According to the data in Table XIIIA, low pay and allowances in the military was most frequently a reason to leave for the first-termers. Despite what could be expected, the first-termers with the lowest education gave this reason more frequently than those with higher education. This is in contradiction both with the previous income analysis (Table XII) and with the response rates in Table XIIIB about civilian job opportunities.

However, the important question is not whether the personnel's civilian earnings expectations are realistic or not, but what they perceive that they can earn, because it is their subjective expectations that make them decide whether to stay or leave. The military solution may therefore not necessarily have to be to pay all groups better, but to provide objective information about civilian earning opportunities. Such information could probably reduce attrition, especially among low-educated, married personnel.

Also better civilian job opportunities were more frequently given as a reason to leave by first-termers than by personnel with more tenure (Table XIIIB). In general, the higher the respondent's education, the higher was the proportion of the personnel that felt civilian job opportunities were a strong reason for leaving.

Also a high proportion of first-termers thought of leaving because they wanted to continue their education, and some wanted to use their G-I bill or V.E.A.P. benefits.

Generally, a much higher proportion of blacks than whites at each educational level gave this reason for considering leaving (Table XIIIC).

To be separated from the family was mentioned as a reason for leaving much more frequently among those at sea duty than among those ashore, which sounds reasonable. Even among those with service ashore, this reason was given by around 40% of enlistees with wife and/or children, which indicates that enlistees frequently are --or expect to be -- living separated from their family (Table XIIID). Also a surprisingly large proportion of enlistees without wives or children (i.e. singles) mentioned separation from family as a problem. This indicates that singles also have a need to be together with their family (parents, sisters and brothers, friends, etc.), a factor that has not been given much consideration.

To disagree with personnel policy can mean many different things, and no further precision of what the answer was supposed to include was given in the survey questionnaire. It can, among other things, include special treatment of different races, special treatment of females, disagreement with pay-policy, career patterns, lack of work autonomy, etc. According to Tables XIIIE and F, this answer was much more frequently given among first-termers than among those with longer tenure, more often among whites than blacks, and generally more often among those at sea than among those ashore.

Among first-termers, this reason was much more frequently given by white males than by white females.

5. Conclusions

Based on the data in Table XII, it seems that the military was paying high rent (i.e., overpayed) enlistees with low education, especially when they were married. Considering the current military problems with recruiting enough personnel with higher education, it seems as a wage differentiation could make military wages more in accordance with civilian wages, and solve some of the manpower problems without increasing total expenditures.

From Table XI it can also be seen that a relatively high proportion of enlistees with higher tenure had not considered leaving. The same personnel seemed --according to Tables XIIIA to XIIIC --less oriented toward higher pay and education. Whether they stay in the military because of a high degree of job satisfaction (challenging work, job autonomy, responsibility, or job security), whether it is because of lack of other opportunities due to low school grades or a low mental category, or because of the future retirement benefits, is not analyzed in this thesis.

A further discussion of the various reasons for leaving will be included in the analysis of the different rating groups.

IV. EXISTING DIFFERENCES BETWEEN PERSONNEL IN DIFFERENT RATINGS

A. THE SAMPLE

As previously described (page 26), this part of the thesis will deal with the differences that exist among the different ratings in work environment, income, and civilian opportunities, and thereby try to explain some of the reasons for different retention rates. The purpose is mainly to make it evident that proper retention control can only be achieved if the military both understands that different ratings may have different reasons for leaving and reacts accordingly with different vehicles (bonuses, educational incentives, sea/shore duty times, etc.) for different ratings.

The sample consists of those in their last year of the first-term plus first-term extenders only.

The respondents were asked in the survey to give their current, primary rating. Four "boxes" were made available for the rating in the questionnaire, while the codes have a total length of 2 to 4 letters and numbers. Because it was possible to write a rating code in different ways, the data file did not contain a unique representation of each rating code. For example, the code "AD" was contained in the data file in the following ways:

```
"AD  "     "AD1 "     "AD01"     "AD10"     "AD 1"
" AD "     "AD2 "     "AD02"     "AD20"     "AD 2"
"  AD"     "AD3 "     "AD03"
" A D"
```

It was therefore necessary to do more than 600 data mod-
ifications in the data file before data processing and analyses
of the various ratings could begin.

The following results will not necessarily be statistic-
ally significant at the .05 level. The reason is mainly that
the number of persons in each rating is rather low - from 8 to
86 enlistees. Ratings with a sample size lower than 8 have
been excluded from this analysis. Exceptions are the ratings
CTT and CTO with 5 and 6 respondents, respectively. These
two ratings will always be "grouped" with the somewhat bigger
ratings CTA and CTR in the discussion.

If CTA, CTO, CTR and CTT are regarded as one rating (i.e.
CT), Table XIV gives the distribution of sample sizes in the
study.

Table XV gives the abbreviated rating name and the full
rating title for the ratings included in this study. In the
remainder of the text of this thesis, the abbreviated form
will be used.

B. RETENTION INTENTION RATES FOR VARIOUS RATINGS

1. The Results

Based on the previously described retention dummy
variable, the retention rates were computed for each rating.

TABLE XIV

THE DISTRIBUTION OF SAMPLE SIZES IN THE STUDY

Sample Size	# of Ratings
8-10	6
11-15	5
16-20	8
21-30	9
31-50	6
51-86	5

TABLE XV

RATINGS INCLUDED IN THE STUDY

ABH	Aviation Boatwain's Mate
AC	Air Controlman
AD	Aviation Machinist's Mate
ADJ	" " " (Jet Engine)
AE	Aviation Electrician's Mate
AK	Aviation Storekeeper
AMH	Aviation Structural Mechanic (Hydraulics)
AMS	" " " (Structures)
AO	Aviation Ordnanceman
AQ	Aviation Fire Control Technician
AT	Aviation Electronics Technician
AZ	Aviation Maintenance Adm. man
BM	Boatwain's Mate
BT	Boiler Technician
CTA	Communication Technician (Adm)
CTO	" " (Comm)
CTR	" " (Collection)
CTT	" " (Tech)
DP	Data Processing Technician
DS	Data Systems Technician
EM	Electricians Mate
EN	Engine Man
ET	Electronics Technician
EW	Electronics Warfare Technician
FTG	Fire Control Technician (Gun)
FTM	" " " (Surface Missile)
GMG	Gunman's Mate (Gun)
HM	Hospital Corpsman
HT	Hull Maintenance Technician
IC	Interior Communications Technician
MM	Machinist's Mate
MR	Machinery Repairman
MS	Mess Management Specialist
OS	Operations Specialist
PN	Personnelman
QM	Quartermaster
RM	Radioman
SH	Ship's Serviceman
SK	Storekeeper
STG	Sonar Technician (Surface)
STS	" " (Submarine)
YN	Yeoman

Table XVI presents the retention rates, a 95% confidence interval and the sample size for each rating. The confidence intervals are computed according to the formula

$$\pi = P \pm t_{.025} \sqrt{\frac{P(1-P)}{n}}$$

described by Wonnacott and Wonnacott [Ref. 12], where

π = population proportion

P = sample proportion

$t_{.025}$ = the critical t-value for a 95% confidence interval, with n-1 degrees of freedom

n = sample size

This formula can only be used for sample sizes equal to, or larger than 25. For the ratings with smaller sample sizes, the Clopper-Pearson Chart was used [Ref. 12].

Formulas exist for derivation of confidence intervals between two population proportions, and thereby make it possible to determine with confidence whether two proportions are different or not. This requires, however, larger sample sizes than what is available in this study. In other words, due to the small sample sizes, it has not been determined whether the various retention rates in Table XVI really are different from one another.

However, several of the ratings --with sample sizes up to 20 --have a retention rate of zero, which means that nobody in the sample intended to reenlist. The rating YN has a retention rate between 21 and 50 percent. There are,

TABLE XVI

RETENTION INTENTION RATES FOR THE RATINGS IN THE STUDY

Rating	Mean	% Confidence Interval			N	% Assigned to A Ship	Work Outside Rating
Average	0.12	.11	–	.14	1159	.60	3.3
ABH	.33	.09	–	.67	12	.83	2.7
AC	.0				8	.25	3.6
AD	.04	.0	–	.25	21	.19	3.1
ADJ	.12				8	.0	2.3
AE	.21	.04	–	.44	19	.21	3.4
AK	.30	.08	–	.63	13	.07	4.0
AMH	.10	.0	–	.46	10	.20	3.5
AMS	.14	.0	–	.38	21	.31	3.2
AO	.05	.0	–	.30	17	.46	4.2
AQ	.11				9	.12	3.4
AT	.20	.08	–	.33	44	.23	3.5
AZ	.08	.0	–	.42	12	.16	3.7
BM	.09	.0	–	.19	41	.94	3.8
BT	.12	.0	–	.33	24	.90	3.9
CTA	.54	.22	–	.85	11	.0	3.1
CTO	.20				5	.0	4.2
CTR	.40	.12	–	.75	10	.0	4.4
CTT	.33				6	.0	4.3
DP	.26	.07	–	.52	15	.21	4.0
DS	.0	.0	–	.18	20	.68	2.7
EM	.05	.0	–	.12	52	.90	3.0
EN	.0	.0	–	.17	18	.76	3.1
ET	.06	.0	–	.12	80	.69	2.8
EW	.0	.0	–	.30	11	.00	2.3
FTG	.10	.0	–	.21	30	.96	2.8
FTM	.06	.0	–	.16	30	.96	2.3
GMG	.0	.0	–	.18	19	.94	3.1
HM	.03	.0	–	.08	83	.11	3.2
HT	.10	.0	–	.21	30	.00	3.7
IC	.03	.0	–	.11	28	.96	3.2
MM	.03	.0	–	.07	86	.97	3.8
MR	.0				8	.75	2.3
MS	.28	.09	–	.47	25	.68	3.5
OS	.06	.0	–	.15	33	.90	2.3
PN	.25	.08	–	.42	28	.29	3.8
QM	.0	.0	–	.32	10	.87	3.0
RM	.13	.06	–	.21	86	.57	3.2
SH	.15	.03	–	.37	19	.73	3.1
SK	.10	.0	–	.20	39	.50	2.9
STG	.05	.0	–	.30	18	.94	2.5
STS	.10	.02	–	.33	19	.94	3.1
YN	.35	.21	–	.50	45	.20	3.4

therefore strong indications of different retention rates between the various ratings. Thus, the retention rates will be used accordingly in the rest of the study as indications.

Also the following findings per rating: the educational level, income data, and attitudes are constrained by the small sample sizes, and will be used as indications only.

C. EDUCATIONAL LEVEL

Within the total sample, the educational level was as follows:

Education	N	%
Elementary School	0	0
HS - no diploma	27	2.4
GED	75	6.5
HS - diploma	723	63.1
College*	321	28.0
	1,146	100.0

*College: 1 or more years in college

Some ratings turned out to have a specially high proportion of enlistees from the two lowest, educational levels:

ABH (25%), AMH (40%), BT (21%),

while high proportions of personnel with some college education were found in

AC (50%), DP (47%), HM (42%),

PN (43%), STS (50%), YN (49%).

No branches had personnel from only the lowest --or only the highest --educational level. People with HS-diploma were used in every rating. This indicates that:

   a. No work area was perceived by the military authorities to be so easy to perform that no formal education is needed, or

   b. Some of the people in some of ratings were over-qualified.

Comparisons between average educational level in the ratings and retention intention gave no clear correlations. Some of the ratings with a high educational level had very low retention intention rates, while others had high rates. The same was found for ratings in which the educational level was lower.

This lack of correlation is probably partly due to the fact that both high and low educated personnel leave because of perceived, higher civilian pay and opportunities, and in order to improve their education. (See Tables XI, XII and XIIIA to XIIIC.)

D. MILITARY WORK CONDITIONS AND CIVILIAN OPPORTUNITIES

   1. _Sea Duty_

If sea duty is an important factor among the younger enlistees for leaving the Navy, as indicated in Figure 3, one would assume that retention rates were generally lowest within those ratings with a high proportion of personnel at sea. These proportions are given in Table XVI and show that within

some ratings more than 80% of the personnel are at sea:

STS, STG, QM, OS, MM, IC, HT, GMG,

FTM, FTG, EW, EM, BT, BM, and ABH.

On the other side, within the following ratings, less than 20% have sea duty:

HM, CT, AZ, AQ, AK, ADJ, and AD

The first group has retention rates between 0 and 12% which are generally lower than the last group's retention rates. The correlation between sea duty and retention intention is presented in Table XXIV.

2. Work Outside Rating

There seems also to be a correlation between retention and the extent to which one works within or outside the rating. The respondents were asked to indicate how much of their work was outside their rating. Their answers were given on a sliding scale, as follows:

```
├──────┼──────┼──────┼──────┤
1      2      3      4      5

Most of                    None of
the time                   the time
```
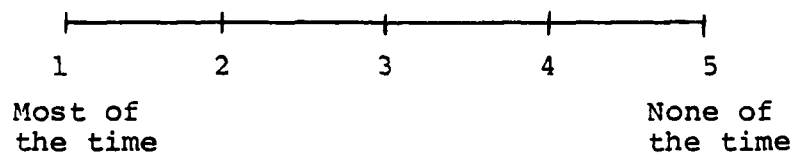
Those ratings which --according to the results in Table XVI - had average values lower than 2.6 had also very low retention rates (between 0 and 12%), while those with values above 4.0 had retention rates between 5 and 54%. The correlation between work outside rating and retention intention is presented in Table XXIV.

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3. Comparisons of Civilian and Military Work Conditions

The enlistees were asked how they would think that their current job would compare with a civilian job if they left the service now and took a civilian job, in regard to the following work conditions:

a. The immediate supervisors

b. Having a say in what happens to me

c. The retirement benefits

d. The medical benefits

e. The chance for interesting and challenging work

f. The wages and salaries

g. The chance for promotion

h. The opportunities for training

i. The people I work with

j. The work schedule and hours of work

k. The job security

l. The equipment I would use on the job

m. The location of the job

Their answers were given on a sliding scale with the following values:

Civilian Job Would Be a Lot Better	Civilian Job Would Be Slightly Better	About The Same In A Civilian And Military Job	Civilian Job Would Be Slightly Worse	Civilian Job Would Be A Lot Worse
1	2	3	4	5
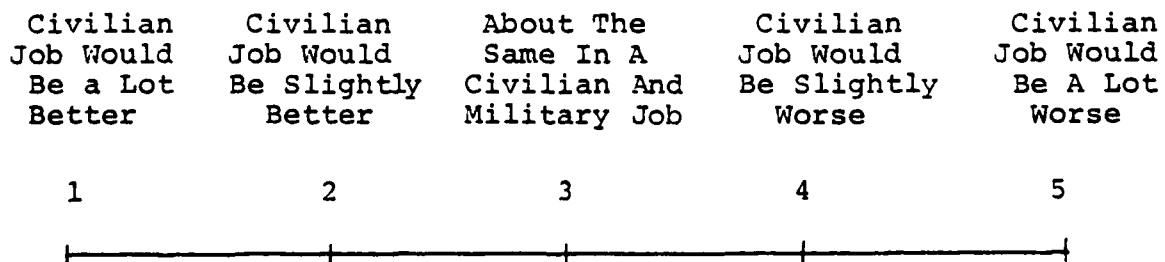
The results are presented in Table XVII.

TABLE XVII

COMPARISONS OF CIVILIAN AND MILITARY WORK CONDITIONS[1,2]

Rating	Super-vision	Having a say	Retire-tirements Benefits	Med-ical	Challen-ging Work	Wages	Chance for pro-motion
Average	2.00	1.61	2.51	2.97	1.73	1.32	1.90
ABH	1.81	1.81	2.90	3.60	2.18	1.27	2.27
AC	1.50	1.37	2.50	3.00	1.37	1.00	1.62
AD	1.95	1.52	2.33	2.61	1.85	1.23	1.85
ADJ	2.50	1.75	2.37	3.37	2.12	1.62	2.12
AE	2.38	1.77	3.16	3.55	1.61	1.38	1.94
AK	3.07	2.46	3.00	3.92	2.53	2.15	2.75
AMH	1.88	1.33	1.88	2.77	2.55	1.44	2.00
AMS	2.04	1.47	2.50	3.05	1.71	1.33	1.66
AO	2.11	1.70	3.00	3.33	2.29	1.47	2.29
AQ	2.77	2.33	2.55	3.00	2.11	1.11	1.55
AT	2.15	1.79	2.65	2.73	1.77	1.20	1.76
AZ	1.83	1.75	2.41	3.16	1.83	1.41	1.83
BM	1.71	1.73	2.52	3.05	1.70	1.36	1.87
BT	1.73	1.47	1.95	3.04	1.87	1.08	1.86
CTA	2.20	2.63	2.77	3.66	2.44	1.55	2.11
CTO	2.60	1.60	2.00	2.20	1.60	1.20	1.80
CTR	2.80	2.40	2.88	4.00	2.00	1.90	2.10
CTT	2.50	1.20	3.33	3.33	2.33	2.00	2.60
DP	2.46	2.20	2.66	2.73	2.20	1.28	1.93
DS	1.68	1.30	2.35	2.15	1.40	1.10	1.75
EM	1.96	1.47	2.30	2.78	1.61	1.19	1.78
EN	1.55	1.77	2.44	2.88	1.83	1.05	2.11
ET	2.03	1.48	2.38	2.87	1.53	1.16	1.85
EW	1.72	1.36	2.40	2.54	1.45	1.09	2.10
FTG	1.86	1.46	2.36	2.53	1.63	1.23	2.00
FTM	2.00	1.46	2.55	2.90	1.70	1.23	1.93
GMG	1.78	1.52	2.47	3.31	1.72	1.26	2.00
HM	2.17	1.60	2.87	3.42	1.90	1.56	1.98
HT	1.62	1.65	2.44	2.51	1.51	1.17	1.82
IC	1.67	1.32	2.07	2.60	1.42	1.07	1.51
MM	1.70	1.51	2.23	2.58	1.36	1.08	1.82
MR	1.87	1.50	1.87	2.50	1.25	1.25	1.25
MS	2.04	1.69	3.08	3.45	1.75	1.82	2.00
OS	2.00	1.31	2.59	2.90	1.70	1.21	2.00
PN	2.53	1.96	3.03	3.46	1.78	1.50	2.32
QM	1.50	1.40	2.10	2.70	1.50	1.10	1.40
RM	1.89	1.45	2.36	3.08	1.69	1.34	1.72
SH	1.52	1.57	2.66	3.31	1.55	1.26	1.84
SK	2.10	1.62	2.41	3.12	1.60	1.37	1.97
STG	1.83	1.50	2.05	2.72	1.44	1.11	1.66
STS	2.57	1.78	2.52	2.52	1.89	1.00	1.77
YN	2.24	1.73	2.68	3.13	1.95	1.73	2.06

[1]The Data are average responses.

[2]Continues on the next page

TABLE XVII (con't)

COMPARISONS OF CIVILIAN AND MILITARY WORK CONDITIONS

Rating	Training Opport- unities	People to Work With	Work Schedule	Job Security	Equip- ment	Loca- tion
Average	2.14	2.15	1.61	3.15	1.86	1.52
ABH	2.36	2.09	1.72	3.18	1.83	1.18
AC	1.62	2.37	2.25	3.00	1.37	2.50
AD	2.25	2.33	1.33	3.33	1.52	1.85
ADJ	2.12	2.25	2.00	3.25	2.00	1.50
AE	2.22	2.27	1.50	3.38	1.88	1.61
AK	3.23	2.69	2.38	3.38	2.75	2.23
AMH	2.33	2.11	1.00	3.12	1.44	1.55
AMS	2.23	2.23	1.38	3.42	1.80	1.52
AO	2.35	1.81	1.94	3.20	2.29	1.47
AQ	2.22	2.44	1.87	3.55	1.77	1.55
AT	2.22	2.27	1.93	3.44	1.88	1.63
AZ	1.91	2.25	1.63	2.91	2.18	1.16
BM	2.02	1.83	1.73	2.69	1.70	1.39
BT	2.21	2.00	1.08	2.82	1.86	1.30
CTA	2.66	2.44	2.55	3.25	2.44	1.90
CTO	1.80	2.60	1.60	3.20	2.20	1.20
CTR	2.40	3.00	2.00	4.11	2.20	2.10
CTT	2.80	3.16	2.16	3.66	1.83	2.16
DP	2.13	2.86	1.86	3.20	1.66	1.80
DS	1.95	2.05	1.47	2.90	1.55	1.15
EM	2.11	2.28	1.21	3.05	1.90	1.38
EN	1.77	2.16	1.64	3.11	1.55	1.44
ET	2.15	2.26	1.45	3.25	1.80	1.40
EW	2.30	2.18	1.45	3.45	1.54	1.09
FTG	2.26	1.96	1.41	3.46	1.56	1.53
FTM	2.06	2.16	1.65	3.46	1.63	1.36
GMG	2.10	1.84	1.68	3.00	1.89	1.36
HM	2.22	2.39	2.12	3.31	1.98	1.67
HT	2.17	1.79	1.48	3.20	1.72	1.41
IC	1.60	1.67	1.42	3.07	1.53	1.32
MM	1.87	1.97	1.15	2.88	1.55	1.27
MR	1.42	1.87	1.50	2.50	1.25	1.37
MS	2.65	2.21	1.95	3.30	2.21	1.69
OS	2.22	1.77	1.45	3.09	2.06	1.37
PN	2.30	2.35	2.14	3.28	2.00	1.96
QM	1.40	1.40	1.60	2.44	1.60	1.60
RM	2.04	2.02	1.29	2.87	1.89	1.44
SH	2.10	1.47	1.42	2.63	1.78	1.21
SK	2.08	2.24	1.75	3.35	2.13	1.75
STG	1.94	1.50	1.33	2.72	1.38	1.16
STS	2.55	2.52	1.36	3.33	1.88	1.89
YN	2.28	2.34	1.84	3.13	2.26	1.84

The average scores for the total sample shows that everything was expected to be better in a civilian job, except for job security. The strongest improvements were expected to be in the areas:

a. Wages   (score 1.32)

b. Job Location   (score 1.52)

c. Work schedule and work hours   (score 1.61)

d. Having a say in what happens to me   (score 1.61)

e. Challenging work   (score 1.73)

f. Chance for promotion   (score 1.90)

In Table XVIIIA are listed - for each work condition - those ratings which expect the strongest improvements by changing to a civilian job, and those ratings which expect the smallest improvements or worse work conditions in a civilian job.

In Table XVIIIB are listed those ratings which frequently were included in the Table XVIIIA, together with their retention rates from Table XVI. Those who expected strong improvements had generally extremely low retention rates, while those who were least optimistic about a civilian job had generally retention rates far above the average.

When some of the ratings expect strong improvements in their work conditions if they take a civilian job, it may mean two different things:

TABLE XVIIIA

THE RATINGS THAT EXPECTED MOST AND LEAST
IMPROVEMENTS BY TAKING A CIVILIAN JOB

Work Condition	Expect strong Improvements	Expect deterioration or small improvements
Supervisors	AC,EN,QM,SH,HT	AK,CT,AQ,STS,PN
Having a say	AMH,DS,EW,IC,OS	AK,AQ,CT,DP,PN
Retirement benefits	AMH,BT,IC,MR,STG	AE,AK,AO,MS,PN
Medical benefits	DS,FTG,HT,MR,STS	ABH,AE,AK,MS,PN
Challenging work	AC,DS,IC,MM,MR	ABH,AK,AMH,AO,DP
Wages	AC,BT,EN,IC,MM,STS	ADJ,AK,CT,MS,YN
Chance for promotion	AC,AQ,IC,MR,QM	ABH,ADJ,AO,CT,PN
Training opportunities	AC,EN,IC,MR,QM	ABH,AK,CT,MS,STS
People to work with	HT,IC,QM,SH,STG	AK,AQ,CT,DP,STS
Work Schedule	AMH,BT,EM,MM,RM	AC,AK,CT,HM,PN
Job security	BM,MR,QM,SH,STG	AQ,CT,EW,FTG,FTM
Equipment	AC,AD,AMH,MR,STG	AK,AO,CT,MS,YN
Job location	ABH,AZ,DS,EN,STG	AC,AK,PN,STS,YN

TABLE XVIIIB

RATINGS FREQUENTLY INCLUDED IN TABLE XVIIIA

Expect Strong Improvements			Expect Small Improvements		
Rating	Repetition	Retention	Rating	Repetition	Retention
AC	6	.0	AK	11	.3
IC	6	.03	CT	9	.4
MR	6	.0	PN	7	.25
STG	5	.05	MS	5	.28
AMH	4	.1	STS	4	.1
EN	3	.0	AO	4	.05
QM	3	.0	ABH	4	.33
HT	3	.1	YN	3	.35
DS	3	.0			
BT	3	.12			
MM	3	.03			
QM	3	.0			

a. The civilian, comparable jobs are really providing good work conditions, compared to the Navy job and to other civilian jobs. These are probably higher paid jobs, where a high compensation for the manpower exists.

b. The current military job offers work conditions which are worse than other military jobs. If that is the case, the civilian alternative does not necessarily have to be more attractive than most other civilian jobs, to make the personnel leave the military.

People who come under category a, above, will probably leave even if they feel quite satisfied with the military life, because of a high pay difference. For these prople, more competitive wages will probably be the most effective and efficient way to improve retention. However, for those who come under category b, above, the retention rates could probably be improved more effectively by providing a better, military work environment. More will be said about this later, in separate comments to some of the ratings.

4. The Most Important Reasons to Leave the Military

In the previous section, the most important reasons for leaving the military were found for personnel in each enlistment term.

In this section, the most important reasons for the various ratings will be assigned.

Table XIX shows the percentages of each rating that has marked that particular reason for leaving. In Table XX, the ratings that mentioned the particular reason most frequently are listed. The fact that the reason to leave varied considerably between the different ratings emphasizes the

TABLE XIX

THE MOST IMPORTANT REASONS TO LEAVE THE MILITARY[1]

Rating	Not eligible to Reenlist	Location of Assignment	Frequency of PCS Moves	Separation from family	Family wants me out	Personnel Policies	Discrimination
Average	.01	.09	.03	.34	.06	.29	.10
ABH	.08	.08	.0	.33	.08	.25	.08
AC	.0	.0	.0	.25	.0	.25	.12
AD	.04	.0	.0	.14	.0	.42	.09
ADJ	.0	.12	.12	.62	.0	.12	.0
AE	.0	.10	.0	.36	.05	.42	.10
AK	.0	.15	.07	.38	.07	.15	.07
AMH	.0	.30	.0	.40	.10	.30	.20
AMS	.0	.04	.0	.42	.09	.19	.04
AO	.0	.17	.0	.58	.17	.41	.23
AQ	.0	.11	.0	.11	.11	.22	.0
AT	.0	.04	.11	.37	.02	.23	.16
AZ	.0	.36	.0	.18	.09	.27	.0
BM	.04	.17	.02	.34	.0	.26	.24
BT	.04	.08	.0	.56	.04	.34	.08
CTA	.0	.18	.0	.18	.09	.09	.0
CTO	.0	.0	.0	.40	.0	.20	.20
CTR	.0	.0	.0	.10	.20	.10	.30
CTT	.0	.0	.0	.0	.16	.16	.16
DP	.0	.06	.0	.26	.06	.13	.06
DS	.0	.05	.0	.30	.0	.35	.15
EM	.0	.03	.01	.34	.0	.34	.05
EN	.0	.16	.0	.38	.22	.11	.11
ET	.01	.07	.06	.26	.03	.40	.05
EW	.0	.18	.0	.45	.09	.27	.18
FTG	.0	.06	.03	.44	.10	.31	.03
FTM	.0	.03	.0	.43	.03	.23	.0
GMG	.0	.15	.05	.31	.05	.31	.05
HM	.01	.07	.04	.20	.09	.22	.09
HT	.0	.13	.03	.48	.20	.27	.06
IC	.0	.07	.0	.35	.0	.35	.10
MM	.03	.08	.0	.39	.08	.29	.05
MR	.0	.25	.0	.50	.12	.62	.0
MS	.08	.16	.04	.20	.04	.32	.20
OS	.03	.03	.03	.50	.03	.50	.06
PN	.0	.10	.0	.17	.03	.28	.07
QM	.0	.10	.0	.30	.10	.40	.10
RM	.02	.05	.05	.34	.02	.36	.16
SH	.0	.05	.0	.42	.05	.21	.21
SK	.0	.02	.02	.34	.02	.26	.13
STG	.0	.05	.0	.44	.0	.11	.0
STS	.0	.10	.05	.57	.15	.21	.10
YN	.0	.11	.04	.26	.13	.11	.15

[1]The table continues on the next page.

TABLE XIX (con't)

THE MOST IMPORTANT REASONS TO LEAVE THE MILITARY

Rating	Not enough opport. for adv.	Low pay & allow- ance	Better civ. opport.	Recl. in mil- itary benefits	Decline in qual. of pers.	Cannot prac- tice skills	Bored with job	Don't like job
Average	.07	.50	.42	.28	.21	.05	.06	.07
ABH	.0	.41	.50	.08	.33	.08	.0	.0
AC	.0	.75	.87	.0	.12	.0	.0	.0
AD	.14	.80	.38	.28	.28	.0	.04	.0
ADJ	.0	.50	.75	.37	.0	.12	.0	.0
AE	.05	.57	.42	.26	.21	.0	.0	.05
AK	.0	.30	.15	.38	.07	.07	.0	.0
AMH	.0	.50	.30	.30	.30	.0	.0	.0
AMS	.04	.47	.33	.76	.23	.14	.04	.0
AO	.0	.58	.23	.35	.05	.0	.0	.11
AQ	.33	.77	.55	.22	.22	.0	.0	.0
AT	.09	.53	.51	.30	.20	.06	.02	.04
AZ	.18	.63	.27	.45	.18	.0	.0	.0
BM	.0	.41	.29	.12	.24	.04	.09	.09
BT	.0	.56	.65	.21	.21	.04	.04	.08
CTA	.0	.63	.27	.54	.18	.09	.09	.0
CTO	.20	.40	.20	.80	.20	.0	.0	.0
CTR	.20	.40	.50	.50	.0	.0	.20	.0
CTT	.16	.33	.16	.0	.16	.16	.0	.0
DP	.0	.66	.40	.26	.13	.06	.0	.06
DS	.05	.55	.80	.20	.25	.05	.0	.0
EM	.07	.63	.59	.28	.21	.0	.03	.01
EN	.0	.55	.44	.27	.38	.11	.05	.0
ET	.08	.52	.46	.23	.21	.05	.05	.12
EW	.0	.36	.45	.27	.09	.09	.09	.0
FTG	.0	.41	.55	.34	.20	.13	.13	10
FTM	.0	.46	.60	.26	.26	.06	.06	.16
GMG	.0	.52	.15	.42	.21	.05	.05	.0
HM	.12	.37	.26	.30	.19	.09	.04	.04
HT	.03	.55	.51	.24	.13	.06	.10	.03
IC	.03	.39	.57	.28	.25	.03	.03	.03
MM	.04	.53	.54	.18	.19	.04	.03	.19
MR	.0	.12	.50	.12	.12	.12	.12	.12
MS	.04	.32	.32	.32	.16	.16	.04	.04
OS	.03	.53	.09	.15	.21	.03	.03	.18
PN	.03	.53	.35	.32	.28	.0	.03	.03
QM	.0	.40	.60	.0	.30	.20	.20	.10
RM	.08	.47	.35	.23	.11	.02	.10	.09
SH	.15	.36	.36	.21	.31	.05	.0	.0
SK	.10	.47	.15	.47	.31	.02	.07	.05
STG	.11	.61	.55	.33	.27	.11	.05	.11
STS	.0	.52	.68	.15	.10	.0	.0	.0
YN	.08	.40	.33	.26	.22	.04	.08	.0

TABLE XX

THE RATINGS THAT MOST FREQUENTLY MENTIONED
A PARTICULAR REASON FOR LEAVING THE MILITARY

Reason To Leave	The Particular Reason Is Mentioned Most Frequently By
Dislike location of my assignment	AMH,AO,AZ,BM,EW,MR
Better civilian job opportunities	AC,ADJ,BT,DS,EM,FTM
Dislike being separated from family	ADJ,AO,BT,MR,OS,STS
My family wants me to leave	AO,EN,HT,STS
Disagree with personnel policies	AD,AE,AO,ET,MR,OS,QM
Discrimination against military	AO,BM,MS,SH
Not enough opportunity for advancement	AQ,AZ,CT,SH
Low pay and allowances	AC,AD,AQ,AZ,DP,EM,STG
Reduction in military benefits	AMS,BM,CT,GMG,SK
Decline in quality of military personnel	ABH,EN,SH,SK
Don't like my job	ET,FTM,MM,OS

need for different retention controlling policies for the various ratings.

Comparisons between Table XVIII and XX show that, in general, the ratings that have expressed low wages most frequently as a reason to leave, were not the same ratings that expected the strongest wage improvements by taking a civilian job. This shows that it is not necessarily the size of the pay difference that make the personnel leave, but probably whether their current pay level is perceived to be fair, and makes it possible to cover their most common needs or not. The correlation between retention intention and the factors "Separation from family" and "Personnel policies" was analyzed. The results are presented in Table XXIV.

5. Comparisons of Military Income and Expected Civilian Income

Earlier in this thesis, military compensation and allowances were compared with national, average income levels for people with different levels of education. The findings indicated that the military paid rent to the lowest educated personnel, and paid too little to unmarried personnel with higher amounts of education.

This analysis will examine to what extent total military income and expectations about civilian earnings vary between the ratings.

The total military income is computed as described earlier. The sample in the survey was asked how much they

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would expect to earn per year in wages and salary if they left the military and took a full-time job.

Table XXI presents the military, total income figures and expected civilian earnings per rating. In a separate column, the special allowances are presented. Those amounts are included in the total income figures.

The column for total military income includes both married and unmarried personnel. Since marital status has a significant impact on the military income, it is here assumed that the distribution of married and unmarried personnel is the same in all ratings. Since the number of people in each rating to some extent is small, this assumption is probably not in accordance with reality. However, to make separate analyses for married and single personnel would reduce the number of people in many of the ratings to an unsatisfactory level.

However, variations in special allowances (described on page 66) should be of more interest than the total military pay, since the allowances are the main reasons for pay differentiations, except for marital status. The annual allowances vary significantly, from zero to more than $3,000. Since the numbers are averages, there are probably big differences also within each rating, but the numbers still indicate that the total income is quite dependent on the person's rating.

Expectations concerning civilian pay varied from $8,800 to $18,100. In average, the people in the sample

TABLE XXI

TOTAL MILITARY INCOME AND EXPECTED CIVILIAN EARNINGS

Rating	Special Allowances in $	Total Military Income in $	Expected Civ. Earnings in $	Difference Mil./Civ. Inc. in $
Average	993	9830	14710	4880
ABH	100	6780	15720	8939
AC	1400	10976	17457	6480
AD	213	10055	14875	4819
ADJ	160	8800	15500	6699
AE	16	9726	13566	3840
AK	51	8742	8822	80
AMH	170	9280	13466	4186
AMS	1155	11494	15233	3739
AO	201	8830	11900	3069
AQ	200	11573	16500	4926
AT	139	9969	15235	5266
AZ	20	9127	14000	4872
BM	178	8167	12902	4735
BT	2060	10536	14521	3985
CTA	0	9362	13927	4564
CTO	39	10082	11125	1042
CTR	0	5887	10666	4779
CTT	3600	14690	13666	-1023
DP	795	10386	17708	7321
DS	1148	9976	16305	6328
EM	1414	10284	15097	4813
EN	2611	11404	18133	6729
ET	1136	9859	16734	6874
EW	919	9225	16136	6910
FTG	1343	10082	14857	4774
FTM	1115	9346	15339	5993
GMG	633	8089	12428	4339
HM	177	9286	14164	4878
HT	2086	10871	14762	3890
IC	1278	9206	15621	6415
MM	2184	10565	16400	5834
MR	1524	8569	13093	4524
MS	1640	9964	12213	2249
OS	1026	8964	12472	3508
PN	943	10592	13518	2926
QM	342	8977	15166	6188
RM	887	9320	13957	4636
SH	828	8621	13538	4916
SK	279	8976	11471	2495
STG	186	8767	16230	7463
STS	2352	12411	17166	4755
YN	752	10209	13025	2815

MICROCOPY RESOLUTION TEST CHART
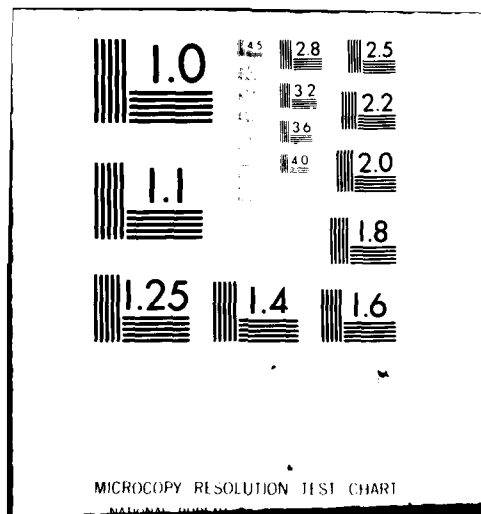
expected their annual salaries to increase by almost $5,000, or 49.6 percent, if they took a civilian job. The ratings that expected the highest civilian salaries were:

AC, AQ, DP, DS, EN, ET, EW, MM, STG and STS,

while those who have the highest allowances (and therefore earn most during the first term) were:

AC, AG, BT, EM, EN, FTG, HT, MM, MS and STS.

Only the ratings AC, EN, MM and STS were in both groups above.

The correlation between retention intention and the amount of special allowances and expected civilian earnings was analyzed. The results are presented in Table XXIV.

Compared with the figures in Table XII the respondents' civilian pay expectations are generally much higher than average national income levels. Some studies indicate that military service has a positive impact on people's pay, but since the All Volunteer Force contains higher proportions of lower mental groups than the total population, [see Cooper, Ref. 14], there is no reason to believe that their average earnings will be above the average, national level. Their civilian pay expectations are, therefore, probably to a large extent unrealistic. However, it is the expectations that play a role in their decision to stay or not. Therefore, it is possible that retention could be improved if personnel were provided realistic information about what they could earn outside the military. In other words, a pay hike is not necessarily the only way to reduce pay dissatisfaction. (See also page 72).

Earlier in this study, it has been suggested to use pay differentiation to avoid paying rent, and to make military pay more in accordance with the market wage. Such a pay scale should probably take into consideration that relevant civilian pay differs for the various ratings.

Without any documentation from the survey, this writer believes that the reenlistment bonus is not perceived as a pay, but as a compensation for signing up for four more years. If that is true, reenlistment bonuses may not be the appropriate way to use money to control retention. If the bonus was spread out to increase monthly pay in the desired ratings, this may turn out to be more effective. If the reenlistment bonus disappears, it means that the four-year reenlistment contract system will also have to stop. While the first four-year contract is explained by heavy military training investments in the personnel, there should be no similar reason to require the personnel to commit themselves for so long a time if they reenlist. The current reenlistment system is probably perceived by many first-termers as very rigid and inflexible compared with civilian opportunities, and may scare unnecessarily many away. It is therefore suggested that further study of the reenlistment system be carried out with emphasis on the consequences of the following proposed changes:

a. When the first-term contract was over, enlistees would enter a nearly ordinary employer-employee job relationship, with a three-month or six-month notice required before leaving.

b. The reenlistment bonus system would be cancelled, and
the money instead used to add to the monthly pay primarily
for people in ratings that leave because of high civilian
wage opportunities.

6. The Likeliness to Find a Good Civilian Job

As important for retention as work conditions, chal-
lenges, pay and opportunity to be with family, is probably
the likeliness for the enlistees to find a good civilian job.
Some enlistees have received highly specialized military
training, which there is little or no demand for among civil-
ian companies. This group will therefore probably be more
inclined to reenlist than people who are trained in areas that
are highly demanded outside the military.

The unemployment rates in the civilian industries will
also influence retention, exactly as the rates influence re-
cruitment. High unemployment in one branch will therefore
tend to increase retention in those ratings where that parti-
cular industry usually recruits its manpower.

The survey asked about the enlistees' likeliness to
find a good civilian job if they tried. The respondents
marked their answer on a sliding scale, which is described
along with the results in Table XXII.

The results show that all the considered ratings had
a generally optimistic view on their likeliness to find a
good civilian job. The most optimistic personnel were in
the ratings:

> AC(.0), AQ(.11), DS(.0), EN(.0), FTG(.1), MR(.0), and
> STS(.1)

TABLE XXII

THE LIKELINESS TO FIND A GOOD CIVILIAN JOB

Scale

```
0    1    2    2    4    5    6    7    8    9    10
```

No Chance   Fairly Good   Certain
                             Possibility

Rating	Likeliness to find a good job
Average	8.0
ABH	8.0
AC	8.8
AD	7.4
ADJ	8.0
AE	8.2
AK	7.5
AMH	7.2
AMS	8.3
AO	6.8
AQ	9.1
AT	8.5
AZ	8.0
BM	7.0
BT	8.4
CTA	7.9
CTO	7.6
CTR	6.0
CTT	6.6
DP	7.3
DS	9.5
EM	8.7
EN	9.0
ET	8.5
EW	8.5
FTG	8.8
FTM	7.8
GMG	8.0
HM	7.4
HT	8.5
IC	8.2
MM	8.5
MR	9.0
MS	7.0
OS	8.4
PN	7.7
QM	7.6
RM	8.0
SH	7.0
SK	7.1
STG	8.2
STS	8.8
YN	7.4

while the least optimistic personnel were in:

AMH(.1), AO(.05), BM(.09), CT(.4), MS(.28), SH(.15),
and SK(.1).

The retention rates from Table XVI are given in paranthesis after each of the ratings above, and show that the most optimistic personnel --as to likeliness to find a good civilian job --tend to have lower retention rates. The correlation between the retention intention and likeliness to find a good, civilian job was analyzed. The results are presented in Table XXIV.

7. The Impact of Two Bonus Alternatives on Retention

As previously described, the respondents were asked about their likeliness to reenlist if they received a $4,000 or $8,000 reenlistment bonus.

Using the same method as earlier in this thesis, the retention rate with each of the bonus alternatives was compared with the no-bonus alternative.

The results of the analysis, which was carried out for each rating, are presented in Table XXIII.

For some of the ratings, the bonus alternatives seem to have little or no effect. For them, the desire to leave the military is obviously very strong. This is the case for:

AQ, DS, EM, FTG, FTM, HT, MM, OS, QM and STS,

who all have retention intention rates between 0 and .11. (See Table XVI).

TABLE XXIII

THE IMPACT OF BONUS ON RETENTION INTENTION PER RATING

Rating	Percentage Increase in Likeliness to Reenlist	
	$4000 Bonus	$8000 Bonus
Average	.14	.24
ABH	.08	.25
AC	.0	.14
AD	.36	.63
ADJ	.50	.50
AE	.05	.15
AK	.25	.58
AMH	.30	.40
AMS	.20	.20
AO	.17	.35
AQ	.11	.11
AT	.09	.25
AZ	.18	.36
BM	.18	.39
BT	.08	.17
CTA	.18	.36
CTO	.40	.40
CTR	.30	.50
CTT	.16	.33
DP	.20	.46
DS	.10	.10
EM	.04	.12
EN	.11	.29
ET	.08	.16
EW	.0	.30
FTG	.0	.03
FTM	.0	.10
GMG	.11	.29
HM	.24	.36
HT	.07	.10
IC	.10	.21
MM	.04	.09
MR	.25	.25
MS	.08	.20
OS	.06	.06
PN	.33	.51
QM	.10	.10
RM	.24	.34
SH	.21	.31
SK	.28	.37
STG	.0	.16
STS	.0	.0
YN	.06	.15

Ratings with originally low retention intentions who respond strongly to the bonus alternatives, are:

AC, AD, AO, AZ, BM, EN, EW, GMG, HM, IC.

The analysis also indicates that the following ratings, with original retention intention rates between .2 and .4, will increase the retention rates to between .4 and .8 if the highest bonus alternative was established:

ABH, AK, AT, CT, DP, MS, PN, and YN.

If productivity rates were available for each rating, it would probably be advantageous to carry out separate economical analyses for each rating, in accordance with the previously described sensitivity analysis.

By using the equation on page 46, it should be possible to determine the economical consequences of retaining the first-termer.

For some ratings, with higher first-term productivity, it may be less expensive to recruit new personnel than to have the first-termers reenlist.

For other ratings, with high first-term training costs and low productivity, the military should probably be willing to offer substantial pay hikes or other attractive goods to retain the personnel.

TABLE XXIV

CORRELATION ANALYSES BETWEEN VARIOUS WORK FACTORS AND RETENTION INTENTION[1]

Ref. Table	Work Factor	R^2	Intercept	Slope	Significance
XVI	Sea duty	.20451	.20764	-.15559	.00132
XIX	Separation from family	.15732	.25659	-.36425	.00465
XIX	Personnel Policies	.25635	.28336	-.56007	.00031
XVI	Work outside rating	.16675	-.16047	.08944	.00363
XXI	Allowances ($1000)	.02886	.15484	-.02556	.14107
XXI	LN Allowances	.28633	.34555	-.03607	.00013
XXI	Civ. pay expecta-tions ($1000)	.14453	.47809	-.02403	.00650
XXI	LN Civ. pay expecta-tions	.14883	3.29754	-.33096	.00589
XXII	Likeliness to find civ. job	.22704	.76869	-.79996	.00071

[1]The sample consisted of first-termers only.

E. COMMENTS ON SEPARATE RATINGS

1. Introduction

The previous analyses indicate that military income, work conditions, and expectations about a civilian job vary significantly among the various ratings. Also the retention intention rates and reactions to different bonus alternatives show large variations among ratings. This indicates that each rating should be treated separately in order to establish efficient and effective retention controlling measures. One way to find the impact of various factors on retention intention, is to carry out multiple regression analyses for each rating separately. Among the factors that probably should be included, are:

a. Difference between military and expected civilian pay

b. Unemployment rates in the appropriate, civilian sector

c. Sex

d. Educational level

e. Race

f. Sea/Shore duty

g. The attitude towards various job factors, (promotion opportunities, job variation, autonomy, supervisors, peers, responsibility)

h. Marital status

Regression analyses will, however, require larger sample sizes than those that are available in the present

survey. The following general comments and suggestions for some of the larger sized ratings, will therefore be based on the results from the previous analyses only.

2. <u>Aviation Machinist's Mate (AD).</u> N = 21

The rating has a low retention intention rate (.04), but it seems to be possible to increase it strongly by offering reenlistment bonus (up to a 63% increase). This is confirmed by the fact that "Low pay and allowances" was this group's most frequent reason to leave.

This group also seemed to be quite dissatisfied with their job equipment.

3. <u>Aviation Structural Mechanic (AMS).</u> N = 21

The retention intention is 14%, and the response to a $4,000 bonus indicated an increase in retention to more than double that percentage. Compared with other ratings, this group has no "extreme" attitudes about civilian job opportunities or military work conditions.

Their main stated reason for wanting to leave was "Reduction in military benefits."

4. <u>Aviation Electronics Technician (AT).</u> N = 44

Their retention intention rate is higher than average (.2), and an $8,000 bonus seems able to increase it to more than double. "Low pay and allowances" and "Better civilian job opportunities" were their main reasons for leaving and they thought that it would be quite easy to find a good

civilian job. They did not expect strong improvements in civilian job conditions.

5. Boatswain's Mate (BM). N = 41

Their retention intention rate is below average (.09) and the analyses indicated that the retention rate may be quadrupled by establishing an $8,000 reenlistment bonus. In spite of their low retention intention rate, this group was among the least optimistic as to the likeliness to find a good, civilian job, and they are not among those who expected strong improvements in work conditions in a civilian job.

Their special allowances were small, and they were therefore among the lowest paid first-termers. A very high percentage served onboard ships (94%), and they were probably exposed to more discrimination than most other groups.

An increase in pay, more opportunities to be with their families, and an effort to improve the discrimination problem, may boost the retention rate.

6. Boiler Technician (BT). N = 24

Most of the people in this group (90%) served onboard ships, and it is therefore no surprise that many said they would leave because they were separated too much from their families.

They had high special allowances and earned more than most first-termers, but they still expected strong improvements in civilian work conditions and pay. However, pay was

probably not the main problem, which was indicated by the rather low impact of the bonus offers.

More opportunities to be with their families and better work schedules may have a great impact on retention (as long as they keep their high allowances).

7. Communication Technicians (CTA, CTO, CTR, CTT). N = 32

The Communications Technicians in the survey have higher retention intention rates than any other of the studied ratings (40%). This is probably partly due to the fact that none of them had sea duty. Their expectations about civilian work conditions and pay were among the very lowest, and except for the CTT-group, their military pay is also low. However, the CTT-group seemed to receive higher special allowances than any other rating, and may be overpaid, considering the group's expected civilian earnings. Their main complaints were poor opportunities for advancement and low pay.

Since there was obviously low demand for their special skills in the civilian community, they seemed to be inclined to stay and the lowest bonus offer alone will probably increase retention to a 65%.

8. Electronics Mate (EM). N = 52

Most of the people in this rating were on sea duty (90%). The retention intention rate was far below average (5%), and their main reasons for leaving were low pay, civilian opportunities, family separation and personnel policies. They expected it to be easy to find a good, civilian job.

In average, they expected a %5,000 annual pay increase by taking a civilian job, which makes it understandable that the impact of the bonus offers was not as strong as for other ratings.

More opportunities to be with their families, along with high pay increases, seem necessary if retention intention shall be improved.

9. <u>Electronics Technicians (ET). N = 80</u>

69% of the people in this group were on sea duty. This was higher than average. Family separation was therefore one of the main reasons for intending to leave.

They expected higher civilian pay than most other groups, while their military pay was around average. This made their annual "loss" by staying in the military amount to almost $7,000. Since they also expected it to be easy to find a good civilian job, the reenlistment bonus offers have but little effect on retention intention.

A solution to the family separation problem, along with major pay increases, seem necessary if the military shall be able to improve the retention intention rate from the current 6%.

10. <u>Fire Control Technicians (FTG and FTM). N = 60</u>

Family separation, good civilian opportunities. and big differences between military and expected civilian pay were the main reasons stated for wanting to leave the Navy.

The Missile group (FTM) expected higher civilian pay than the Gun group (FTG), but had lower military allowances. This may be one of the reasons why the FTM group had an even lower retention rate (6%) than did the FTG group.

On the other side, the Missile group expected it to be more difficult to find a good civilian job than the Gun group.

If pay alone should solve the retention problem, the pay increase would probably have to be very large, since even the $8,000 bonus offer had only little effect on stated intention.

More impact on retention could probably be achieved by providing the personnel more time with their families, since 96% of the people in these ratings reported they were on sea duty.

11. <u>Hospital Corpsmen (HM)</u>. N = 83

This group proves that shore duty does not necessarily mean high retention intention rates. While 89% reported serving ashore, only 3% stated they intended to reenlist.

Except for low military pay, it is not possible to find strong reasons for the low retention intention. They neither expected strong improvements in civilian work conditions, nor did they think that it would be easy to find a good job.

That pay is the main problem, is confirmed by the strong effects of the bonus offers (up to 36% increase in retention intention).

12. <u>Hull Maintenance Technicians (HT). N = 30</u>

These people all served ashore, but the retention intention rate was still lower than average (10%).

They expected civilian work conditions to be much better, especially the relations to their supervisors and peers.

Considering that they all served ashore, it is surprising that 48% express that family separation is a major reason for leaving.

Their special allowances were higher than for most ratings, and the bonus alternatives had a rather small effect on retention intention.

Improvements in work environment and family life were probably more important than pay for this personnel.

13. <u>Interior Communications Technicians (IC). N = 28</u>

Also in this rating, almost everybody served onboard ships (96%).

Since their expectations to find a good civilian job was about average, the demand for this personnel was probably not especially high. So when they expressed stronger than most ratings that civilian work conditions would be much better than current conditions, it may be because their military work was harder than for most comparable ratings.

The work conditions they expected to find better in a civilian job were among others: Autonomy, Retirement benefits, Challenges, Pay, Promotion and Training opportunities.

The bonus offers had average effect on this personnel.

Less sea duty and improved work conditions may be more effective than pay hikes on the retention intention, which was only 3%.

14. **Machinist's Mate (MM). N = 86**

Also in this group, everybody (97%) had sea duty and there was a low retention rate (3%).

They earned more money than most first-termers, but they still thought that their pay could be increased by around 50% if they took a civilian job.

Except for family separation, pay, lack of challenges, and their work schedule seem to be their main complaints. Also, more people in this rating than in any other intended to leave because they did not like their job (19%).

Their current pay would probably be satisfactory for a lot of this personnel if only their work environment and conditions could be improved. That higher pay was not very important for people in this category was confirmed by the very low reactions to the bonus offers.

15. **Personnelmen (PN). N = 28**

The personnelmen seemed to be quite satisfied with their military service. Only 29% served onboard ships,

relatively few complained about family separation, and their pay was at an average level.

They found it harder than most groups to find a good civilian job, and the civilian pay hike would also be low, compared with other ratings.

As a result, their retention intention rate was relatively high (25%), and the bonus offers could increase retention intention rates with around 51%, to a total of around 76%.

16. Radiomen (RM). N = 86

This rating scored close to average values in most factors: Percentage on sea duty, military pay and allowances, difference between military and civilian pay, retention intention rate, and likeliness to find a good job.

The work schedule is the only factor where these people felt stronger than others that a civilian job would be much better.

However, they did react strongly to bonus offers, indicating that better pay was an important factor for this group.

17. Aviation Storekeepers (SK). N = 39

Their military pay was low, and so were their expectations about civilian pay. Also, they found it harder than most groups to find a good, civilian job.

The reason for the low retention intention rate (10%) is therefore hard to explain. It is most probably their pay,

since retention intention rates increased by 3 to 4 times with the bonus alternatives (from 10 to around 50 percent).

V. CONCLUSION AND RECOMMENDATIONS

A. THE MOST IMPORTANT RETENTION INTENTION FACTORS

1. Introduction

It is hardly surprising to find that the most important factors for retention intentions are:

a. military pay and civilian opportunities

b. duty station (sea duty or serving ashore)

c. family considerations

This study also indicates that total military pay, perceived civilian opportunities, duty station and work environment vary to a large extent between people in different ratings.

2. Military Pay and Civilian Opportunities

Those who perceive the biggest monetary "loss" by staying, are not necessarily those who say they will leave. It seems that it is more important for pay to be above a certain minimum level, which makes it possible to cover the more common needs for one's self and the family. If the military income is below that minimum level, people will tend to leave even when civilian pay increases are expected to be quite small.

The study also shows that the military probably pay rent to the lowest educated personnel, while people with a high school diploma or more education are underpaid.

In general, there seem to be large differences between expectations and realism as to the probable, civilian income level they could attain.

Without data from the survey, this writer suggests that an elimination of the contract system after the first four years of service, and establishment of an ordinary work relationship, may have positive effects on retention both in the short run and long run. People who now leave because of unwillingness to start another four year commitment may turn out to stay even longer. Such a system would save reenlistment bonuses, which could be used to structure the general pay system in a more competitive way.

3. Duty Station

First-termers who serve onboard ships, have generally much lower retention intention rates than those who serve ashore.

The differences in retention intention rates are smaller for second-termers, and for third-termers the retention intention rates are higher among those at sea.

The main reason for the lower reenlistment intentions of those at sea seem to be that sea duty results in long periods away from the families. People on sea duty have also generally longer work hours, and their opportunities are small to use their spare time to earn more money to fill the family needs.

4. Family Separation

To be separated from the family over long time periods is mainly a problem for personnel onboard ships. However, large groups of personnel who serve ashore also mention the same issue. In general, but especially for the latter group, this social problem can probably be reduced by military efforts.

The study shows that singles also have a need to be with their families.

B. THE ECONOMICAL CONSEQUENCES OF RETENTION

Equations have been presented for computation of

a. net savings per retained enlistee, and

b. total savings that result from different bonus alternatives

In order to achieve accurate results, it is especially important that productivity rates, interest rates, recruitment costs, training costs and annual pay be as accurate as possible. Especially because of differences in productivity rates, the computations should be done separately for each rating.

The study indicates that each retained first-termer means large savings for the military. For many ratings, the current retention elasticities are at such a level that the more money that is spent at retention efforts, the more money the military will save (up to some level).

C. RECOMMENDATIONS

Based on what has been said above, the final recommendations of this study are as follows:

a. For retention controlling policies to be efficient and effective, it seems necessary to decide upon such policies in accordance with separate studies of each rating.

b. Pay differentiation and different promotion patterns based on civilian, educational level, military training, and market wage would improve recruitment and retention of people with higher education. It would also make it easier to structure the workforce more in accordance with military needs, and reduce rent.

c. An effort to inform enlistees about what they realistically can expect to earn in a civilian job, may have a positive effect on retention.

d. It should be considered to eliminate the contract system after the first four years of service, and to use the saved bonus money to structure the pay system more competively.

e. A great effort seems necessary to improve service patterns and/or family accommodations so that the first-termers, both married and singles, can have more time with their families.

f. The use of more older enlistees at sea duty, and more first-termers ashore should be considered.

g. In order to determine the economical consequences of retaining personnel from different ratings, and thereby to determine how much effort to put forth in trying to retain those personnel, the following variables should be taken into account, as prescribed earlier in this study:

   - the present value of recruitment costs, training costs, wages, retirement benefits, and bonus offers (reenlistment incentives)

   - the probability that the person eventually will retire

   - productivity rates

   - reactions to different bonus alternatives, pay scales, and other reenlistment incentives.

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